



SEQUENCE LISTING

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<110> Fernandez, Elma
Vernet, Corine
Shimkets, Richard A.

<120> Novel Human Proteins and Polynucleotides Encoding Them

<130> Cura-46 (15966-546)

<140> USSN 09/544,511

<141> 2000-04-06

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<151> 1999-04-09

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<170> PatentIn Ver. 2.0

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Phe Leu Gly Leu Gly Ser Gln Glu Pro Gln Lys Gln Glu Glu Gly Ala

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 Gln Val Pro Val Arg Arg Arg Leu Cys Pro Pro Pro Pro Arg Thr Gly
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 Cys Ile Phe

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Glu Glu Met Val Ala Gln Leu Arg Asn Ser Ser Glu Leu Ala Gln Arg
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Lys Cys Glu Val Asn Leu Gln Leu Trp Met Ser Asn Lys Arg Ser Leu
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Ser Pro Trp Gly Tyr Ser Ile Asn His Asp Pro Ser Arg Ile Pro Val
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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Met | Gln | Glu | Asp | Arg | Ser | Met | Val | Ser | Val | Pro | Val | Phe | Ser | Gln |
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 Cys Leu Phe Gln Gly Val Pro Val Arg Ser Gly Asp Ala Thr Phe Pro
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 Lys Ala Met Asp Asn Val Thr Val Arg Gln Gly Glu Ser Ala Thr Leu
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 Ser Thr Ile Leu Tyr Ala Gly Asn Asp Lys Trp Cys Leu Asp Pro Arg
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| 170 175 180 | |
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| Glu Cys Ser Ala Ser Asn Asp Val Ala Ala Pro Val Val Arg Arg Val | |
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| Gly Cys Val Trp Leu Pro Pro Leu Leu Val Leu His Leu Leu Leu Lys | |
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Phe

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 Gln Gly Glu Ser Ala Thr Leu Arg Cys Thr Ile Asp Asn Arg Val Thr
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 Lys Trp Cys Leu Asp Pro Arg Val Val Leu Leu Ser Asn Thr Gln Thr
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 Gln Tyr Ser Ile Glu Ile Gln Asn Val Asp Val Tyr Asp Glu Gly Pro
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 Tyr Thr Cys Ser Val Gln Thr Asp Asn His Pro Lys Thr Ser Arg Val
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His Leu Ile Val Gln Val Ser Pro Lys Ile Val Glu Ile Ser Ser Asp
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Ile Ser Ile Asn Glu Gly Asn Asn Ile Ser Leu Thr Cys Ile Ala Thr
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Ala Pro Val Val Arg Arg Val Lys Val Thr Val Asn Tyr Pro Pro Tyr
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Ile Ser Glu Ala Lys Gly Thr Gly Val Pro Val Gly Gln Lys Gly Thr
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Asn Ala Ser Ile Met Leu Phe Gly Pro Gly Ala Val Ser Glu Val Ser
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Asp Asn Arg Val Thr Arg Val Ala Trp Leu Asn Arg Ser Thr Ile Leu
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| gag att tct tca gat atc tcc att aat gaa ggg aac aat att agc ctc | | | 965 |
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| Ile Ser Pro Lys Ala Val Gly Phe Val Ser Glu Asp Glu Tyr Leu Glu | | | |
| 175 | 180 | 185 | |
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| Ile Gln Gly Ile Thr Arg Glu Gln Ser Gly Asp Tyr Glu Cys Ser Ala | | | |
| 190 | 195 | 200 | |
| tcc aat gac gtg gcc gcg ccc gtg gta cgg aga gta aag gtc acc gtg | | | 1157 |
| Ser Asn Asp Val Ala Ala Pro Val Val Arg Arg Val Lys Val Thr Val | | | |
| 205 | 210 | 215 | |
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| Gly Val Lys Val Glu Asn Arg Pro Phe Leu Ser Lys Leu Ile Phe Phe | | | |
| 270 | 275 | 280 | |
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290

295

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 Gly Arg Pro Glu Pro Thr Val Thr Trp Arg His Ile Ser Pro Lys Ala
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 Val Gly Phe Val Ser Glu Asp Glu Tyr Leu Glu Ile Gln Gly Ile Thr
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 225 230 235 240
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 275 280 285
 Asp Tyr Gly Asn Tyr Thr Cys Val Ala Ser Asn Lys Leu Gly His Thr
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 Asn Ala Ser Ile Met Leu Phe Gly Pro Gly Ala Val Ser Glu Val Ser
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| | | | |
| cct gag atc cct cat tct ttg gca cca gga aca gtt gca att agt aaa | | | 825 |
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| 85 | 90 | 95 | |
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| Leu Leu Asn | | | |
| 165 | | | |
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| cgggttcagc catgctgggc atctgtctta tataatacaa ttatttagag atggtgggta | | | 1186 |
| | | | |
| gagaacaact acagaaaaaa aaaaaaaaaa aaaaaaaaaa aa | | | 1228 |

<210> 8

<211> 166

<212> PRT

<213> Homo sapiens

<400> 8

Met Asn Phe Leu Lys Leu Ile Ala Val Phe Ile Val Phe Ser His Ala

1 5 10 15
 Ser Glu Ser Pro Gln Asp Ser Thr Pro Asn Gln Leu Tyr Ile Trp Gly
 20 25 30
 Arg Thr Lys Ala Leu Val Phe Phe Arg Ser Ser Thr Gly Asp Ser Asp
 35 40 45
 Ser Thr Ala Arg Ile Lys Lys Leu Ile Asn Gly Asn Gly Met Pro Val
 50 55 60
 Ala Glu Glu Leu Pro Trp Glu Met Ser His Thr Glu His Gln Ser Ser
 65 70 75 80
 Phe Pro Thr Pro Glu Ile Pro His Ser Leu Ala Pro Gly Thr Val Ala
 85 90 95
 Ile Ser Lys Pro Trp Phe Pro Ala Val Ser Gln Ile Ala Arg Val Gln
 100 105 110
 Arg Val Asp Ile Asn Phe Cys Ser Trp Glu Asp Leu Ser Pro Ser Gly
 115 120 125
 Lys Ala Thr Gly Lys Ser Arg Thr His Cys Thr Val Thr Ala Val Ser
 130 135 140
 Ser Asn Ala Thr Thr His Ala Gly Ile Asn Asn Glu His Gly Trp Gly
 145 150 155 160
 Ser Leu Glu Leu Leu Asn
 165

<210> 9

<211> 1917

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (410)..(889)

<400> 9

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tgggataac ctgtactgat ttctctgcag gaccttttca aagaatcctc ttcaagagag 120

aaacaaattt taggctgacg acttcacgga gaggcagggtt ctgctgttgc caatgaacga 180

gaactttcta ctaggctggc ggcattgcaga gccacgtct gtcagctgcc accttcgtaa 240

agcacacggt tcacatgcat gagctcgagt ggctagaact tcaaaactgt gctcaggttt 300

ttgttttggga agttataaaa aagttgctca caaacaatag ttattgcctt ttatatcttt 360

tatgttagtc tactagtcag cattctgccc aaaatggaaa gccactccc atg gga agg 418

Met Gly Arg

1

gag ggg gta gca gct ggg agt ctg ctc ttc cag ctg ggg gcc ctc cca 466

Glu Gly Val Ala Ala Gly Ser Leu Leu Phe Gln Leu Gly Ala Leu Pro

5

10

15

ccc cca tgg gga gga aag acg tca agc tcc agc cac tgg ccc'cgg tgg 514

Pro Pro Trp Gly Gly Lys Thr Ser Ser Ser Ser His Trp Pro Arg Trp

20

25

30

35

gtc cca aag ccc cac ccc tca tgc tct cct ctg gtc acc tct att tac 562

Val Pro Lys Pro His Pro Ser Cys Ser Pro Leu Val Thr Ser Ile Tyr

40

45

50

gct cac atg ccc ctt cct gtc ctt cac ctg cac gtc acc agc agg tcc 610

Ala His Met Pro Leu Pro Val Leu His Leu His Val Thr Ser Arg Ser

55

60

65

cgc caa ccc caa atc tat ctg gtg aaa acc tgg aga aca aga gcg gag 658

Arg Gln Pro Gln Ile Tyr Leu Val Lys Thr Trp Arg Thr Arg Ala Glu

70

75

80

tct aag aga gat gta aat gaa aac aca gat caa cag aca cac cag aag 706

Ser Lys Arg Asp Val Asn Glu Asn Thr Asp Gln Gln Thr His Gln Lys

85

90

95

gga agc gtt gtt tcc gcg ggg aaa gga gat gga aag ggg aag aga agt 754

Gly Ser Val Val Ser Ala Gly Lys Gly Asp Gly Lys Gly Lys Arg Ser

100

105

110

115

gaa gaa ttc tgc gcc cga agc tcg ggt tgg tgt ttg ctc aac tgc ttt 802

Glu Glu Phe Cys Ala Arg Ser Ser Gly Trp Cys Leu Leu Asn Cys Phe

120

125

130

act cat ttt aac cct ttc acc tat cct ggg aga aac cca ggc ttg tca 850

Thr His Phe Asn Pro Phe Thr Tyr Pro Gly Arg Asn Pro Gly Leu Ser

135

140

145

cct ttt cat gtt ggg ttg ttt gtt tat tgg cct ctt aag tgagaattga 899

Pro Phe His Val Gly Leu Phe Val Tyr Trp Pro Leu Lys
 150 155 160

tccgtgaagg gaaacagaca ggaggaggtc agattgcgaa tacctggggc ttccatagggt 959
 ccagtgcggc agttaccgca cctgccttca ccggtgaacc tttagccagc tgaacaacca 1019
 ccaaagcgcc ctgcagagac aagtcattca gccctctggc atgtccctgg tagcccgggc 1079
 accagccgct gcggcttgtg aggggcacca tgctccaccc cacggggacc ttcacagttg 1139
 gaaaaaagaa gaggaaaaac taattccttc ggtaacagtt tattttcatt tttgggaaag 1199
 gaaaaccac tacctggaac tcggtgcctc cgtgggtaac tttcctatct tgcttgtgat 1259
 ttaaaggctg ttctgggtca ggggggaaaa ggtgtctcct tcggtaggga atatataacg 1319
 tgggtgataac ctgtcactag gcagaagcat ccactctgca gggacagtgg cccctcagga 1379
 aagcccgcg ctctggcca aggcctctct gcagactcca cgggggctca ccctctgccg 1439
 tcaggcgact ctgaaattcc gacatttctc ccttaaagtc tcaacagaca caagagaagt 1499
 ttccatcaag caagcactga catatttata ttaaaaaata gtgcaaaatc tcaacattta 1559
 tataaataac tctaaacccc tgctttgtaa tttttttctt tacaaggtaa tacacacttt 1619
 ctgacttggc actcaaaaat tgccattttt ttctcttctt agttcagaaa acaacttttt 1679
 tttttaatag gcctcttcta atacaaaaat actcctgccc tcgcacatac agtttctctt 1739
 atcttatata tatttatata tataatattg cagatcttta aacaaagggt ttgtgcaaat 1799
 atgtctttaa agttaagtga aattatcata aacaaaagaa aataagcatt cacgcacgca 1859
 gctcaactag aaacaagaaa gactactgta gaaatttttt ttcttttgcc ttcaagac 1917

<210> 10
 <211> 160
 <212> PRT
 <213> Homo sapiens

<400> 10
 Met Gly Arg Glu Gly Val Ala Ala Gly Ser Leu Leu Phe Gln Leu Gly
 1 5 10 15

Ala Leu Pro Pro Pro Trp Gly Gly Lys Thr Ser Ser Ser Ser His Trp

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | 20 | | | | 25 | | | | 30 | | | |
| Pro | Arg | Trp | Val | Pro | Lys | Pro | His | Pro | Ser | Cys | Ser | Pro | Leu | Val | Thr |
| 35 | | | | 40 | | | | 45 | | | | | | | |
| Ser | Ile | Tyr | Ala | His | Met | Pro | Leu | Pro | Val | Leu | His | Leu | His | Val | Thr |
| 50 | | | | 55 | | | | 60 | | | | | | | |
| Ser | Arg | Ser | Arg | Gln | Pro | Gln | Ile | Tyr | Leu | Val | Lys | Thr | Trp | Arg | Thr |
| 65 | | | | 70 | | | | 75 | | | | 80 | | | |
| Arg | Ala | Glu | Ser | Lys | Arg | Asp | Val | Asn | Glu | Asn | Thr | Asp | Gln | Gln | Thr |
| | | | | 85 | | | | 90 | | | | 95 | | | |
| His | Gln | Lys | Gly | Ser | Val | Val | Ser | Ala | Gly | Lys | Gly | Asp | Gly | Lys | Gly |
| 100 | | | | 105 | | | | 110 | | | | | | | |
| Lys | Arg | Ser | Glu | Glu | Phe | Cys | Ala | Arg | Ser | Ser | Gly | Trp | Cys | Leu | Leu |
| 115 | | | | 120 | | | | 125 | | | | | | | |
| Asn | Cys | Phe | Thr | His | Phe | Asn | Pro | Phe | Thr | Tyr | Pro | Gly | Arg | Asn | Pro |
| 130 | | | | 135 | | | | 140 | | | | | | | |
| Gly | Leu | Ser | Pro | Phe | His | Val | Gly | Leu | Phe | Val | Tyr | Trp | Pro | Leu | Lys |
| 145 | | | | 150 | | | | 155 | | | | 160 | | | |

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<210> 11
<211> 1279
<212> DNA
<213> Homo sapiens
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<220>
<221> CDS
<222> (410) .. (892)
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<220>
<221> misc_feature
<222> (1225)..(1279)
<223> where any n may be an a or t or g or c
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<400> 11
acgcgtcaca taaaggaaag atacgtttta atcatcttta caagtgcgtc cttgtacctt 60
tcgggataac ctgtactgat ttctctgcag gaccttttca aagaatcctc ttcaagagag 120
aaacaaatth taggctgacg acttcacgga gaggcaggth ctgctgttgc caatgaacga 180
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gaactttcta ctaggctggc ggcattgcaga gccacgtct gtcagctgcc accttcgtaa 240

agcacacgtt tcacatgcat gagctcgagt ggctagaact tcaaaactgt gctcaggttt 300

ttgttttgga agttataaaa aagttgctca caaacaatag ttattgcctt ttatatcttt 360

tatgttagtc tactagtcag cattctgccc aaaatggaaa gccactccc atg gga agg 418

Met Gly Arg

1

gag ggg gta gca gct ggg agt ctg ctc ttc cag ctg ggg gcc ctc cca 466

Glu Gly Val Ala Ala Gly Ser Leu Leu Phe Gln Leu Gly Ala Leu Pro

5

10

15

ccc cca tgg gga gga aag acg tca agc tcc agc cac tgg ccc cgg tgg 514

Pro Pro Trp Gly Gly Lys Thr Ser Ser Ser Ser His Trp Pro Arg Trp

20

25

30

35

gtc cca aag ccc cac ccc tca tgc tct cct ctg gtc acc tct att tac 562

Val Pro Lys Pro His Pro Ser Cys Ser Pro Leu Val Thr Ser Ile Tyr

40

45

50

gct cac atg ccc ctt cct gtc ctt cac ctg cac gtc acc agc agg tcc 610

Ala His Met Pro Leu Pro Val Leu His Leu His Val Thr Ser Arg Ser

55

60

65

cgc caa ccc caa atc tat ctg gtg aaa acc tgg aga aca aga gcg gag 658

Arg Gln Pro Gln Ile Tyr Leu Val Lys Thr Trp Arg Thr Arg Ala Glu

70

75

80

tct aag aga gat gta aat gaa aac aca gat caa cag aca cac cag aag 706

Ser Lys Arg Asp Val Asn Glu Asn Thr Asp Gln Gln Thr His Gln Lys

85

90

95

gga agc gtt gtt tcc gcg ggg aaa gga gat gga aag ggg aag aga agt 754

Gly Ser Val Val Ser Ala Gly Lys Gly Asp Gly Lys Gly Lys Arg Ser

100

105

110

115

gaa gaa ttc tgc gcc cga agc tcg ggt tgg tgt ttg ctc aac tgc ttt 802

Glu Glu Phe Cys Ala Arg Ser Ser Gly Trp Cys Leu Leu Asn Cys Phe

120

125

130

act cat ttt aac cct ttc acc tat cct ggg aga aac cca ggc ttg tca 850

Thr His Phe Asn Pro Phe Thr Tyr Pro Gly Arg Asn Pro Gly Leu Ser

135

140

145

cct ttt cat gtt ggg ttg ttt att ggc ctc tta agt gag aat 892

Pro Phe His Val Gly Leu Phe Ile Gly Leu Leu Ser Glu Asn

150

155

160

tgatccgtga agggaaacag acaggaggag gtcagattgc gaatacctgg ggcttcctag 952
 ggtccagtgc ggcagttacc gcacctgcct tcaccggtga acctttagcc agctgaacaa 1012
 ccaccaaagc gccctgcaga gacaagtcac cgagccctct ggcatgtccc tggtagcccg 1072
 ggcaccagcc gctgcggtt gtgaggggca ccatgctcca cccacgggg accttcacag 1132
 ttggaaaaaa gaagaggaaa aactaattcc ttcggtaaca gtttattttc atttttggga 1192
 aaggcaaaac cactacctgg aactcgggtgc ctgnganntc ttanntnctn nctnagnenn 1252
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<210> 12

<211> 161

<212> PRT

<213> Homo sapiens

<400> 12

Met Gly Arg Glu Gly Val Ala Ala Gly Ser Leu Leu Phe Gln Leu Gly
 1 5 10 15

Ala Leu Pro Pro Pro Trp Gly Gly Lys Thr Ser Ser Ser Ser His Trp
 20 25 30

Pro Arg Trp Val Pro Lys Pro His Pro Ser Cys Ser Pro Leu Val Thr
 35 40 45

Ser Ile Tyr Ala His Met Pro Leu Pro Val Leu His Leu His Val Thr
 50 55 60

Ser Arg Ser Arg Gln Pro Gln Ile Tyr Leu Val Lys Thr Trp Arg Thr
 65 70 75 80

Arg Ala Glu Ser Lys Arg Asp Val Asn Glu Asn Thr Asp Gln Gln Thr
 85 90 95

His Gln Lys Gly Ser Val Val Ser Ala Gly Lys Gly Asp Gly Lys Gly
 100 105 110

Lys Arg Ser Glu Glu Phe Cys Ala Arg Ser Ser Gly Trp Cys Leu Leu
 115 120 125

Asn Cys Phe Thr His Phe Asn Pro Phe Thr Tyr Pro Gly Arg Asn Pro

130

135

140

Gly Leu Ser Pro Phe His Val Gly Leu Phe Ile Gly Leu Leu Ser Glu
 145 150 155 160

Asn

<210> 13

<211> 1689

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (199)..(1146)

<400> 13

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agctacgtgc ctgtgtgcgg ctctgatggg aggttttatg aaaaccactg taagctccac 120

cgtgctgctt gcctcctggg aaagaggatc accgtcatcc acagcaagga ctgtttcctc 180

aaaggtgaca cgtgcacc atg gcc ggc tac gcc cgc ttg aag aat gtc ctt 231
 Met Ala Gly Tyr Ala Arg Leu Lys Asn Val Leu
 1 5 10

ctg gca ctc cag acc cgt ctg cag cca ctc caa gaa gga gac agc aga 279
 Leu Ala Leu Gln Thr Arg Leu Gln Pro Leu Gln Glu Gly Asp Ser Arg
 15 20 25

caa gac cct gcc tcc cag aag cgc ctc ctg gtg gaa tct ctg ttc agg 327
 Gln Asp Pro Ala Ser Gln Lys Arg Leu Leu Val Glu Ser Leu Phe Arg
 30 35 40

gac tta gat gca gat ggc aat ggc cac ctc agc agc tcc gaa ctg gct 375
 Asp Leu Asp Ala Asp Gly Asn Gly His Leu Ser Ser Ser Glu Leu Ala
 45 50 55

cag cat gtg ctg aag aag cag gac ctg gat gaa gac tta ctt ggt tgc 423
 Gln His Val Leu Lys Lys Gln Asp Leu Asp Glu Asp Leu Leu Gly Cys
 60 65 70 75

tca cca ggt gac ctc ctc cga ttt gac gat tac aac agt gac agc tcc 471
 Ser Pro Gly Asp Leu Leu Arg Phe Asp Asp Tyr Asn Ser Asp Ser Ser
 80 85 90

| | |
|---|------|
| ctg acc ctc cgc gag ttc tac atg gcc ttc caa gtg gtt cag ctc agc | 519 |
| Leu Thr Leu Arg Glu Phe Tyr Met Ala Phe Gln Val Val Gln Leu Ser | |
| 95 100 105 | |
| ctc gcc ccc gag gac agg gtc agt gtg acc aca gtg acc gtg ggg ctg | 567 |
| Leu Ala Pro Glu Asp Arg Val Ser Val Thr Thr Val Thr Val Gly Leu | |
| 110 115 120 | |
| agc aca gtg ctg acc tgc gcc gtc cat gga gac ctg agg cca cca atc | 615 |
| Ser Thr Val Leu Thr Cys Ala Val His Gly Asp Leu Arg Pro Pro Ile | |
| 125 130 135 | |
| atc tgg aag cgc aac ggg ctc acc ctg aac ttc ctg gac ttg gaa gac | 663 |
| Ile Trp Lys Arg Asn Gly Leu Thr Leu Asn Phe Leu Asp Leu Glu Asp | |
| 140 145 150 155 | |
| atc aat gac ttt gga gag gat gat tcc ctg tac atc acc aag gtg acc | 711 |
| Ile Asn Asp Phe Gly Glu Asp Asp Ser Leu Tyr Ile Thr Lys Val Thr | |
| 160 165 170 | |
| acc atc cac atg ggc aat tac acc tgc cat gct tcc ggc cac gag cag | 759 |
| Thr Ile His Met Gly Asn Tyr Thr Cys His Ala Ser Gly His Glu Gln | |
| 175 180 185 | |
| ctg ttc cag acc cac gtc ctg cag gtg aat gtg ccg cca gtc atc cgt | 807 |
| Leu Phe Gln Thr His Val Leu Gln Val Asn Val Pro Pro Val Ile Arg | |
| 190 195 200 | |
| gtc tat cca gag agc cag gca cag gag cct gga gtg gca gcc agc cta | 855 |
| Val Tyr Pro Glu Ser Gln Ala Gln Glu Pro Gly Val Ala Ala Ser Leu | |
| 205 210 215 | |
| aga tgc cat gct gag ggc att ccc atg ccc aga atc act tgg ctg aaa | 903 |
| Arg Cys His Ala Glu Gly Ile Pro Met Pro Arg Ile Thr Trp Leu Lys | |
| 220 225 230 235 | |
| aac ggc gtg gat gtc tca act cag atg tcc aaa cag ctc tcc ctt tta | 951 |
| Asn Gly Val Asp Val Ser Thr Gln Met Ser Lys Gln Leu Ser Leu Leu | |
| 240 245 250 | |
| gcc aat ggg agc gaa ctc cac atc agc agt gtt cgg tat gaa gac aca | 999 |
| Ala Asn Gly Ser Glu Leu His Ile Ser Ser Val Arg Tyr Glu Asp Thr | |
| 255 260 265 | |
| ggg gca tac acc tgc att gcc aaa aat gaa gtg ggt gtg gat gaa gat | 1047 |
| Gly Ala Tyr Thr Cys Ile Ala Lys Asn Glu Val Gly Val Asp Glu Asp | |
| 270 275 280 | |

atc tcc tcg ctc ttc att gaa gac tca gct aga aag acc ctt gca aac 1095
 Ile Ser Ser Leu Phe Ile Glu Asp Ser Ala Arg Lys Thr Leu Ala Asn
 285 290 295

atc ctg tgg cga gag gaa ggt acc aag ctt cat tgt ttt gcg tca tgc 1143
 Ile Leu Trp Arg Glu Glu Gly Thr Lys Leu His Cys Phe Ala Ser Cys
 300 305 310 315

ctg tgatcacgtg tgtttggttc tatgatgggc cgtctttcca tgatctgcca 1196
 Leu

ccagctttcc cacacaaagc agccctatgg gagcaggaag tcaatgtcaa attcaagtgg 1256

catatgcatt gaatcaaatt taaaatgtac tcctgtcttt aatgagaaat ttttaaattgc 1316

aaagctttca ttaaaagtgg cttgtaacct ctgctgaagc agaacagttg gtaagggttc 1376

ctggtcagat ctgggcctta aacttttttc cagtagctga ctggtgttgg gtttagtggtt 1436

ttgcctatct tgttgtggttt taaaaagaca aaacaagttg tagatctcta ctagatagtc 1496

actgtacctt aaatatgctt tgattgagga aaacccgagg aaaaagctgc catgatttct 1556

gccaatgtat atttttaaat gtatagatgt ttagaaacat atttatcaag caaatcttta 1616

gtaagttgag ccatatgaag ttgccatttt tgtgcatcaa agtggtctaa gattgacaat 1676

ttcatatggc tga 1689

<210> 14

<211> 316

<212> PRT

<213> Homo sapiens

<400> 14

Met Ala Gly Tyr Ala Arg Leu Lys Asn Val Leu Leu Ala Leu Gln Thr
 1 5 10 15

Arg Leu Gln Pro Leu Gln Glu Gly Asp Ser Arg Gln Asp Pro Ala Ser
 20 25 30

Gln Lys Arg Leu Leu Val Glu Ser Leu Phe Arg Asp Leu Asp Ala Asp
 35 40 45

Gly Asn Gly His Leu Ser Ser Ser Glu Leu Ala Gln His Val Leu Lys
 50 55 60

Lys Gln Asp Leu Asp Glu Asp Leu Leu Gly Cys Ser Pro Gly Asp Leu
 65 70 75 80

Leu Arg Phe Asp Asp Tyr Asn Ser Asp Ser Ser Leu Thr Leu Arg Glu
 85 90 95

Phe Tyr Met Ala Phe Gln Val Val Gln Leu Ser Leu Ala Pro Glu Asp
 100 105 110

Arg Val Ser Val Thr Thr Val Thr Val Gly Leu Ser Thr Val Leu Thr
 115 120 125

Cys Ala Val His Gly Asp Leu Arg Pro Pro Ile Ile Trp Lys Arg Asn
 130 135 140

Gly Leu Thr Leu Asn Phe Leu Asp Leu Glu Asp Ile Asn Asp Phe Gly
 145 150 155 160

Glu Asp Asp Ser Leu Tyr Ile Thr Lys Val Thr Thr Ile His Met Gly
 165 170 175

Asn Tyr Thr Cys His Ala Ser Gly His Glu Gln Leu Phe Gln Thr His
 180 185 190

Val Leu Gln Val Asn Val Pro Pro Val Ile Arg Val Tyr Pro Glu Ser
 195 200 205

Gln Ala Gln Glu Pro Gly Val Ala Ala Ser Leu Arg Cys His Ala Glu
 210 215 220

Gly Ile Pro Met Pro Arg Ile Thr Trp Leu Lys Asn Gly Val Asp Val
 225 230 235 240

Ser Thr Gln Met Ser Lys Gln Leu Ser Leu Leu Ala Asn Gly Ser Glu
 245 250 255

Leu His Ile Ser Ser Val Arg Tyr Glu Asp Thr Gly Ala Tyr Thr Cys
 260 265 270

Ile Ala Lys Asn Glu Val Gly Val Asp Glu Asp Ile Ser Ser Leu Phe
 275 280 285

Ile Glu Asp Ser Ala Arg Lys Thr Leu Ala Asn Ile Leu Trp Arg Glu
 290 295 300

Glu Gly Thr Lys Leu His Cys Phe Ala Ser Cys Leu
 305 310 315

| | |
|---|------|
| gag ccc gaa tgc cag tgc ctg gag gca tgc agg ccc agc tac gtg cct | 704 |
| Glu Pro Glu Cys Gln Cys Leu Glu Ala Cys Arg Pro Ser Tyr Val Pro | |
| 85 90 95 | |
| gtg tgc ggc tct gat ggg agg ttt tat gaa aac cac tgt aag ctc cac | 752 |
| Val Cys Gly Ser Asp Gly Arg Phe Tyr Glu Asn His Cys Lys Leu His | |
| 100 105 110 115 | |
| cgt gct gct tgc ctc ctg gga aag agg atc acc gtc atc cac agc aag | 800 |
| Arg Ala Ala Cys Leu Leu Gly Lys Arg Ile Thr Val Ile His Ser Lys | |
| 120 125 130 | |
| gac tgt ttc ctc aaa ggt gac acg tgc acc atg gcc ggc tac gcc cgc | 848 |
| Asp Cys Phe Leu Lys Gly Asp Thr Cys Thr Met Ala Gly Tyr Ala Arg | |
| 135 140 145 | |
| ttg aag aat gtc ctt ctg gca ctc cag acc cgt ctg cag cca ctc caa | 896 |
| Leu Lys Asn Val Leu Leu Ala Leu Gln Thr Arg Leu Gln Pro Leu Gln | |
| 150 155 160 | |
| gaa gga gac agc aga caa gac cct gcc tcc cag aag cgc ctc ctg gtg | 944 |
| Glu Gly Asp Ser Arg Gln Asp Pro Ala Ser Gln Lys Arg Leu Leu Val | |
| 165 170 175 | |
| gaa tct ctg ttc agg gac tta gat gca gat ggc aat ggc cac ctc agc | 992 |
| Glu Ser Leu Phe Arg Asp Leu Asp Ala Asp Gly Asn Gly His Leu Ser | |
| 180 185 190 195 | |
| agc tcc gaa ctg gct cag cat gtg ctg aag aag cag gac ctg gat gaa | 1040 |
| Ser Ser Glu Leu Ala Gln His Val Leu Lys Lys Gln Asp Leu Asp Glu | |
| 200 205 210 | |
| gac tta ctt ggt tgc tca cca ggt gac ctc ctc cga ttt gac gat tac | 1088 |
| Asp Leu Leu Gly Cys Ser Pro Gly Asp Leu Leu Arg Phe Asp Asp Tyr | |
| 215 220 225 | |
| aac agt gac agc tcc ctg acc ctc cgc gag ttc tac atg gcc ttc caa | 1136 |
| Asn Ser Asp Ser Ser Leu Thr Leu Arg Glu Phe Tyr Met Ala Phe Gln | |
| 230 235 240 | |
| gtg gtt cag ctc agc ctc gcc ccc gag gac agg gtc agt gtg acc aca | 1184 |
| Val Val Gln Leu Ser Leu Ala Pro Glu Asp Arg Val Ser Val Thr Thr | |
| 245 250 255 | |
| gtg acc gtg ggg ctg agc aca gtg ctg acc tgc gcc gtc cat gga gac | 1232 |
| Val Thr Val Gly Leu Ser Thr Val Leu Thr Cys Ala Val His Gly Asp | |
| 260 265 270 275 | |

| | |
|---|------|
| ctg agg cca cca atc atc tgg aag cgc aac ggg ctc acc ctg aac ttc | 1280 |
| Leu Arg Pro Pro Ile Ile Trp Lys Arg Asn Gly Leu Thr Leu Asn Phe | |
| 280 285 290 | |
| ctg gac ttg gaa gac atc aat gac ttt gga gag gat gat tcc ctg tac | 1328 |
| Leu Asp Leu Glu Asp Ile Asn Asp Phe Gly Glu Asp Asp Ser Leu Tyr | |
| 295 300 305 | |
| atc acc aag gtg acc acc atc cac atg ggc aat tac acc tgc cat gct | 1376 |
| Ile Thr Lys Val Thr Thr Ile His Met Gly Asn Tyr Thr Cys His Ala | |
| 310 315 320 | |
| tcc ggc cac gag cag ctg ttc cag acc cac gtc ctg cag gtg aat gtg | 1424 |
| Ser Gly His Glu Gln Leu Phe Gln Thr His Val Leu Gln Val Asn Val | |
| 325 330 335 | |
| ccg cca gtc atc cgt gtc tat cca gag agc cag gca cag gag cct gga | 1472 |
| Pro Pro Val Ile Arg Val Tyr Pro Glu Ser Gln Ala Gln Glu Pro Gly | |
| 340 345 350 355 | |
| gtg gca gcc agc cta aga tgc cat gct gag ggc att ccc atg ccc aga | 1520 |
| Val Ala Ala Ser Leu Arg Cys His Ala Glu Gly Ile Pro Met Pro Arg | |
| 360 365 370 | |
| atc act tgg ctg aaa aac ggc gtg gat gtc tca act cag atg tcc aaa | 1568 |
| Ile Thr Trp Leu Lys Asn Gly Val Asp Val Ser Thr Gln Met Ser Lys | |
| 375 380 385 | |
| cag ctc tcc ctt tta gcc aat ggg agc gaa ctc cac atc agc agt gtt | 1616 |
| Gln Leu Ser Leu Leu Ala Asn Gly Ser Glu Leu His Ile Ser Ser Val | |
| 390 395 400 | |
| cgg tat gaa gac aca ggg gca tac acc tgc att gcc aaa aat gaa gtg | 1664 |
| Arg Tyr Glu Asp Thr Gly Ala Tyr Thr Cys Ile Ala Lys Asn Glu Val | |
| 405 410 415 | |
| ggg gtg gat gaa gat atc tcc tcg ctc ttc att gaa gac tca gct aga | 1712 |
| Gly Val Asp Glu Asp Ile Ser Ser Leu Phe Ile Glu Asp Ser Ala Arg | |
| 420 425 430 435 | |
| aag acc ctt gca aac atc ctg tgg cga gag gaa ggc ctc agc gtg gga | 1760 |
| Lys Thr Leu Ala Asn Ile Leu Trp Arg Glu Glu Gly Leu Ser Val Gly | |
| 440 445 450 | |
| aac atg ttc tat gtc ttc tcc gac gac ggt atc atc gtc atc cat cct | 1808 |
| Asn Met Phe Tyr Val Phe Ser Asp Asp Gly Ile Ile Val Ile His Pro | |
| 455 460 465 | |

| | |
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| gtg gac tgt gag atc cag agg cac ctc aaa ccc acg gaa aag att ttc | 1856 |
| Val Asp Cys Glu Ile Gln Arg His Leu Lys Pro Thr Glu Lys Ile Phe | |
| 470 475 480 | |
| atg agc tat gaa gaa atc tgt cct caa aga gaa aaa aat gca acc cag | 1904 |
| Met Ser Tyr Glu Glu Ile Cys Pro Gln Arg Glu Lys Asn Ala Thr Gln | |
| 485 490 495 | |
| ccc tgc cag tgg gta tct gca gtc aat gtc cgg aac cgg tac atc tat | 1952 |
| Pro Cys Gln Trp Val Ser Ala Val Asn Val Arg Asn Arg Tyr Ile Tyr | |
| 500 505 510 515 | |
| gtg gcc cag cca gca ctg agc aga gtc ctt gtg gtc gac atc caa gcc | 2000 |
| Val Ala Gln Pro Ala Leu Ser Arg Val Leu Val Val Asp Ile Gln Ala | |
| 520 525 530 | |
| cag aaa gtc cta cag tcc ata ggt gtg gac cct ctg ccg gct aag ctg | 2048 |
| Gln Lys Val Leu Gln Ser Ile Gly Val Asp Pro Leu Pro Ala Lys Leu | |
| 535 540 545 | |
| tcc tat gac aag tca cat gac caa gtg tgg gtc ctg agc tgg ggg gac | 2096 |
| Ser Tyr Asp Lys Ser His Asp Gln Val Trp Val Leu Ser Trp Gly Asp | |
| 550 555 560 | |
| gtg cac aag tcc cga cca agt ctc cag gtg atc aca gaa gcc agc acc | 2144 |
| Val His Lys Ser Arg Pro Ser Leu Gln Val Ile Thr Glu Ala Ser Thr | |
| 565 570 575 | |
| ggc cag agc cag cac ctc atc cgc aca ccc ttt gca gga gtg gat gat | 2192 |
| Gly Gln Ser Gln His Leu Ile Arg Thr Pro Phe Ala Gly Val Asp Asp | |
| 580 585 590 595 | |
| ttc ttc att ccc cca aca aac ctc atc atc aac cac atc agg ttt ggc | 2240 |
| Phe Phe Ile Pro Pro Thr Asn Leu Ile Ile Asn His Ile Arg Phe Gly | |
| 600 605 610 | |
| ttc atc ttc aac aag tct gat cct gca gtc cac aag gtg gac ctg gaa | 2288 |
| Phe Ile Phe Asn Lys Ser Asp Pro Ala Val His Lys Val Asp Leu Glu | |
| 615 620 625 | |
| aca atg atg ccc ctc aag acc atc ggc ctg cac cac cat ggc tgc gtg | 2336 |
| Thr Met Met Pro Leu Lys Thr Ile Gly Leu His His His Gly Cys Val | |
| 630 635 640 | |
| ccc cag gcc atg gca cac acc cac ctg ggc ggc tac ttc ttc atc cag | 2384 |
| Pro Gln Ala Met Ala His Thr His Leu Gly Gly Tyr Phe Phe Ile Gln | |
| 645 650 655 | |

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<212> PRT

<213> Homo sapiens

<400> 16

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| 20 | 25 | 30 | |
| Asp Val Gly Val Gly Glu Ser Gln Ala Glu Glu Pro Arg Ser Phe Glu | | | |
| 35 | 40 | 45 | |
| Val Thr Arg Arg Glu Gly Leu Ser Ser His Asn Glu Leu Leu Ala Ser | | | |
| 50 | 55 | 60 | |
| Cys Gly Lys Lys Phe Cys Ser Arg Gly Ser Arg Cys Val Leu Ser Arg | | | |
| 65 | 70 | 75 | 80 |
| Lys Thr Gly Glu Pro Glu Cys Gln Cys Leu Glu Ala Cys Arg Pro Ser | | | |
| 85 | 90 | 95 | |
| Tyr Val Pro Val Cys Gly Ser Asp Gly Arg Phe Tyr Glu Asn His Cys | | | |
| 100 | 105 | 110 | |
| Lys Leu His Arg Ala Ala Cys Leu Leu Gly Lys Arg Ile Thr Val Ile | | | |
| 115 | 120 | 125 | |
| His Ser Lys Asp Cys Phe Leu Lys Gly Asp Thr Cys Thr Met Ala Gly | | | |
| 130 | 135 | 140 | |
| Tyr Ala Arg Leu Lys Asn Val Leu Leu Ala Leu Gln Thr Arg Leu Gln | | | |
| 145 | 150 | 155 | 160 |
| Pro Leu Gln Glu Gly Asp Ser Arg Gln Asp Pro Ala Ser Gln Lys Arg | | | |
| 165 | 170 | 175 | |
| Leu Leu Val Glu Ser Leu Phe Arg Asp Leu Asp Ala Asp Gly Asn Gly | | | |
| 180 | 185 | 190 | |
| His Leu Ser Ser Ser Glu Leu Ala Gln His Val Leu Lys Lys Gln Asp | | | |
| 195 | 200 | 205 | |
| Leu Asp Glu Asp Leu Leu Gly Cys Ser Pro Gly Asp Leu Leu Arg Phe | | | |
| 210 | 215 | 220 | |
| Asp Asp Tyr Asn Ser Asp Ser Ser Leu Thr Leu Arg Glu Phe Tyr Met | | | |
| 225 | 230 | 235 | 240 |
| Ala Phe Gln Val Val Gln Leu Ser Leu Ala Pro Glu Asp Arg Val Ser | | | |
| 245 | 250 | 255 | |
| Val Thr Thr Val Thr Val Gly Leu Ser Thr Val Leu Thr Cys Ala Val | | | |

| | | |
|---|-----|-----|
| 260 | 265 | 270 |
| His Gly Asp Leu Arg Pro Pro Ile Ile Trp Lys Arg Asn Gly Leu Thr | | |
| 275 | 280 | 285 |
| Leu Asn Phe Leu Asp Leu Glu Asp Ile Asn Asp Phe Gly Glu Asp Asp | | |
| 290 | 295 | 300 |
| Ser Leu Tyr Ile Thr Lys Val Thr Thr Ile His Met Gly Asn Tyr Thr | | |
| 305 | 310 | 315 |
| Cys His Ala Ser Gly His Glu Gln Leu Phe Gln Thr His Val Leu Gln | | |
| 325 | 330 | 335 |
| Val Asn Val Pro Pro Val Ile Arg Val Tyr Pro Glu Ser Gln Ala Gln | | |
| 340 | 345 | 350 |
| Glu Pro Gly Val Ala Ala Ser Leu Arg Cys His Ala Glu Gly Ile Pro | | |
| 355 | 360 | 365 |
| Met Pro Arg Ile Thr Trp Leu Lys Asn Gly Val Asp Val Ser Thr Gln | | |
| 370 | 375 | 380 |
| Met Ser Lys Gln Leu Ser Leu Leu Ala Asn Gly Ser Glu Leu His Ile | | |
| 385 | 390 | 395 |
| Ser Ser Val Arg Tyr Glu Asp Thr Gly Ala Tyr Thr Cys Ile Ala Lys | | |
| 405 | 410 | 415 |
| Asn Glu Val Gly Val Asp Glu Asp Ile Ser Ser Leu Phe Ile Glu Asp | | |
| 420 | 425 | 430 |
| Ser Ala Arg Lys Thr Leu Ala Asn Ile Leu Trp Arg Glu Glu Gly Leu | | |
| 435 | 440 | 445 |
| Ser Val Gly Asn Met Phe Tyr Val Phe Ser Asp Asp Gly Ile Ile Val | | |
| 450 | 455 | 460 |
| Ile His Pro Val Asp Cys Glu Ile Gln Arg His Leu Lys Pro Thr Glu | | |
| 465 | 470 | 475 |
| Lys Ile Phe Met Ser Tyr Glu Glu Ile Cys Pro Gln Arg Glu Lys Asn | | |
| 485 | 490 | 495 |
| Ala Thr Gln Pro Cys Gln Trp Val Ser Ala Val Asn Val Arg Asn Arg | | |
| 500 | 505 | 510 |
| Tyr Ile Tyr Val Ala Gln Pro Ala Leu Ser Arg Val Leu Val Val Asp | | |

| | | |
|---|-----|-------------|
| 515 | 520 | 525 |
| Ile Gln Ala Gln Lys Val Leu Gln Ser Ile Gly Val Asp Pro Leu Pro | | |
| 530 | 535 | 540 |
| Ala Lys Leu Ser Tyr Asp Lys Ser His Asp Gln Val Trp Val Leu Ser | | |
| 545 | 550 | 555 560 |
| Trp Gly Asp Val His Lys Ser Arg Pro Ser Leu Gln Val Ile Thr Glu | | |
| | 565 | 570 575 |
| Ala Ser Thr Gly Gln Ser Gln His Leu Ile Arg Thr Pro Phe Ala Gly | | |
| | 580 | 585 590 |
| Val Asp Asp Phe Phe Ile Pro Pro Thr Asn Leu Ile Ile Asn His Ile | | |
| | 595 | 600 605 |
| Arg Phe Gly Phe Ile Phe Asn Lys Ser Asp Pro Ala Val His Lys Val | | |
| | 610 | 615 620 |
| Asp Leu Glu Thr Met Met Pro Leu Lys Thr Ile Gly Leu His His His | | |
| | 625 | 630 635 640 |
| Gly Cys Val Pro Gln Ala Met Ala His Thr His Leu Gly Gly Tyr Phe | | |
| | 645 | 650 655 |
| Phe Ile Gln Cys Arg Gln Asp Ser Pro Ala Ser Ala Ala Arg Gln Leu | | |
| | 660 | 665 670 |
| Leu Val Asp Ser Val Thr Asp Ser Val Leu Gly Pro Asn Gly Asp Val | | |
| | 675 | 680 685 |
| Thr Gly Thr Pro His Thr Ser Pro Asp Gly Arg Phe Ile Val Ser Ala | | |
| | 690 | 695 700 |
| Ala Ala Asp Ser Pro Trp Leu His Val Gln Glu Ile Thr Val Arg Gly | | |
| | 705 | 710 715 720 |
| Glu Ile Gln Thr Leu Tyr Asp Leu Gln Ile Asn Ser Gly Ile Ser Asp | | |
| | 725 | 730 735 |
| Leu Ala Phe Gln Arg Ser Phe Thr Glu Ser Asn Gln Tyr Asn Ile Tyr | | |
| | 740 | 745 750 |
| Ala Ala Leu His Thr Glu Pro Asp Leu Leu Phe Leu Glu Leu Ser Thr | | |
| | 755 | 760 765 |
| Gly Lys Val Gly Met Leu Lys Asn Leu Lys Glu Pro Pro Ala Gly Pro | | |

770

775

780

Ala Gln Pro Trp Gly Gly Thr His Arg Ile Met Arg Asp Ser Gly Leu
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Phe Gly Gln Tyr Leu Leu Thr Pro Ala Arg Glu Ser Leu Phe Leu Ile
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Met Gln Cys Asp Val Gly Asp Gly Arg Leu Phe Arg Leu Ser Leu Lys

1

5

10

15

cgt gcc ctt tcc agc tgc cct gac ctc ttt ggg ctt tcc agc cgc aac 515

Arg Ala Leu Ser Ser Cys Pro Asp Leu Phe Gly Leu Ser Ser Arg Asn

20

25

30

gag ctg ctg gcc tcc tgc ggg aag aag ttc tgc agc cga ggg agc cgg 563

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Glu | Leu | Leu | Ala | Ser | Cys | Gly | Lys | Lys | Phe | Cys | Ser | Arg | Gly | Ser | Arg | | |
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| tgc | gtg | ctc | agc | agg | aag | aca | ggg | gag | ccc | gaa | tgc | cag | tgc | ctg | gag | 611 | |
| Cys | Val | Leu | Ser | Arg | Lys | Thr | Gly | Glu | Pro | Glu | Cys | Gln | Cys | Leu | Glu | | |
| | 50 | | | | | 55 | | | | | 60 | | | | | | |
| gca | tgc | agg | ccc | agc | tac | gtg | cct | gtg | tgc | ggc | tct | gat | ggg | agg | ttt | 659 | |
| Ala | Cys | Arg | Pro | Ser | Tyr | Val | Pro | Val | Cys | Gly | Ser | Asp | Gly | Arg | Phe | | |
| | 65 | | | | 70 | | | | 75 | | | | | | 80 | | |
| tat | gaa | aac | cac | tgt | aag | ctc | cac | cgt | gct | gct | tgc | ctc | ctg | gga | aag | 707 | |
| Tyr | Glu | Asn | His | Cys | Lys | Leu | His | Arg | Ala | Ala | Cys | Leu | Leu | Gly | Lys | | |
| | | | | 85 | | | | 90 | | | | | | 95 | | | |
| agg | atc | acc | gtc | atc | cac | agc | aag | gac | tgt | ttc | ctc | aaa | ggg | gac | acg | 755 | |
| Arg | Ile | Thr | Val | Ile | His | Ser | Lys | Asp | Cys | Phe | Leu | Lys | Gly | Asp | Thr | | |
| | | | 100 | | | | | 105 | | | | | | 110 | | | |
| tgc | acc | atg | gcc | ggc | tac | gcc | cgc | ttg | aag | aat | gtc | ctt | ctg | gca | ctc | 803 | |
| Cys | Thr | Met | Ala | Gly | Tyr | Ala | Arg | Leu | Lys | Asn | Val | Leu | Leu | Ala | Leu | | |
| | | | 115 | | | | 120 | | | | | | | 125 | | | |
| cag | acc | cgt | ctg | cag | cca | ctc | caa | gaa | gga | gac | agc | aga | caa | gac | cct | 851 | |
| Gln | Thr | Arg | Leu | Gln | Pro | Leu | Gln | Glu | Gly | Asp | Ser | Arg | Gln | Asp | Pro | | |
| | | | 130 | | | | 135 | | | | | | | 140 | | | |
| gcc | tcc | cag | aag | cgc | ctc | ctg | gtg | gaa | tct | ctg | ttc | agg | gac | tta | gat | 899 | |
| Ala | Ser | Gln | Lys | Arg | Leu | Leu | Val | Glu | Ser | Leu | Phe | Arg | Asp | Leu | Asp | | |
| | | | | | 145 | | 150 | | | | 155 | | | | 160 | | |
| gca | gat | ggc | aat | ggc | cac | ctc | agc | agc | tcc | gaa | ctg | gct | cag | cat | gtg | 947 | |
| Ala | Asp | Gly | Asn | Gly | His | Leu | Ser | Ser | Ser | Glu | Leu | Ala | Gln | His | Val | | |
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| ctg | aag | aag | cag | gac | ctg | gat | gaa | gac | tta | ctt | ggg | tgc | tca | cca | ggg | 995 | |
| Leu | Lys | Lys | Gln | Asp | Leu | Asp | Glu | Asp | Leu | Leu | Gly | Cys | Ser | Pro | Gly | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| gac | ctc | ctc | cga | ttt | gac | gat | tac | aac | agt | gac | agc | tcc | ctg | acc | ctc | 1043 | |
| Asp | Leu | Leu | Arg | Phe | Asp | Asp | Tyr | Asn | Ser | Asp | Ser | Ser | Leu | Thr | Leu | | |
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| cgc | gag | ttc | tac | atg | gcc | ttc | caa | gtg | gtt | cag | ctc | agc | ctc | gcc | ccc | 1091 | |
| Arg | Glu | Phe | Tyr | Met | Ala | Phe | Gln | Val | Val | Gln | Leu | Ser | Leu | Ala | Pro | | |
| | | | 210 | | | | 215 | | | | | | | 220 | | | |
| gag | gac | agg | gtc | agt | gtg | acc | aca | gtg | acc | gtg | ggg | ctg | agc | aca | gtg | 1139 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Glu | Asp | Arg | Val | Ser | Val | Thr | Thr | Val | Thr | Val | Gly | Leu | Ser | Thr | Val | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| ctg | acc | tgc | gcc | gtc | cat | gga | gac | ctg | agg | cca | cca | atc | atc | tgg | aag | 1187 |
| Leu | Thr | Cys | Ala | Val | His | Gly | Asp | Leu | Arg | Pro | Pro | Ile | Ile | Trp | Lys | |
| | | | | 245 | | | | 250 | | | | | | 255 | | |
| cgc | aac | ggg | ctc | acc | ctg | aac | ttc | ctg | gac | ttg | gaa | gac | atc | aat | gac | 1235 |
| Arg | Asn | Gly | Leu | Thr | Leu | Asn | Phe | Leu | Asp | Leu | Glu | Asp | Ile | Asn | Asp | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| ttt | gga | gag | gat | gat | tcc | ctg | tac | atc | acc | aag | gtg | acc | acc | atc | cac | 1283 |
| Phe | Gly | Glu | Asp | Asp | Ser | Leu | Tyr | Ile | Thr | Lys | Val | Thr | Thr | Ile | His | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| atg | ggc | aat | tac | acc | tgc | cat | gct | tcc | ggc | cac | gag | cag | ctg | ttc | cag | 1331 |
| Met | Gly | Asn | Tyr | Thr | Cys | His | Ala | Ser | Gly | His | Glu | Gln | Leu | Phe | Gln | |
| | 290 | | | | | 295 | | | | 300 | | | | | | |
| acc | cac | gtc | ctg | cag | gtg | aat | gtg | cgc | cca | gtc | atc | cgt | gtc | tat | cca | 1379 |
| Thr | His | Val | Leu | Gln | Val | Asn | Val | Pro | Pro | Val | Ile | Arg | Val | Tyr | Pro | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| gag | agc | cag | gca | cag | gag | cct | gga | gtg | gca | gcc | agc | cta | aga | tgc | cat | 1427 |
| Glu | Ser | Gln | Ala | Gln | Glu | Pro | Gly | Val | Ala | Ala | Ser | Leu | Arg | Cys | His | |
| | | | | 325 | | | | 330 | | | | | | 335 | | |
| gct | gag | ggc | att | ccc | atg | ccc | aga | atc | act | tgg | ctg | aaa | aac | ggc | gtg | 1475 |
| Ala | Glu | Gly | Ile | Pro | Met | Pro | Arg | Ile | Thr | Trp | Leu | Lys | Asn | Gly | Val | |
| | | | 340 | | | | | 345 | | | | | 350 | | | |
| gat | gtc | tca | act | cag | atg | tcc | aaa | cag | ctc | tcc | ctt | tta | gcc | aat | ggg | 1523 |
| Asp | Val | Ser | Thr | Gln | Met | Ser | Lys | Gln | Leu | Ser | Leu | Leu | Ala | Asn | Gly | |
| | | 355 | | | | | 360 | | | | | 365 | | | | |
| agc | gaa | ctc | cac | atc | agc | agt | gtt | cgg | tat | gaa | gac | aca | ggg | gca | tac | 1571 |
| Ser | Glu | Leu | His | Ile | Ser | Ser | Val | Arg | Tyr | Glu | Asp | Thr | Gly | Ala | Tyr | |
| | 370 | | | | | 375 | | | | 380 | | | | | | |
| acc | tgc | att | gcc | aaa | aat | gaa | gtg | ggg | gtg | gat | gaa | gat | atc | tcc | tcg | 1619 |
| Thr | Cys | Ile | Ala | Lys | Asn | Glu | Val | Gly | Val | Asp | Glu | Asp | Ile | Ser | Ser | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| ctc | ttc | att | gaa | gac | tca | gct | aga | aag | acc | ctt | gca | aac | atc | ctg | tgg | 1667 |
| Leu | Phe | Ile | Glu | Asp | Ser | Ala | Arg | Lys | Thr | Leu | Ala | Asn | Ile | Leu | Trp | |
| | | | | 405 | | | | 410 | | | | | | 415 | | |
| cga | gag | gaa | ggc | ctc | agc | gtg | gga | aac | atg | ttc | tat | gtc | ttc | tcc | gac | 1715 |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Arg | Glu | Glu | Gly | Leu | Ser | Val | Gly | Asn | Met | Phe | Tyr | Val | Phe | Ser | Asp | |
| | | | 420 | | | | | 425 | | | | | 430 | | | |
| gac | ggg | atc | atc | gtc | atc | cat | cct | gtg | gac | tgt | gag | atc | cag | agg | cac | 1763 |
| Asp | Gly | Ile | Ile | Val | Ile | His | Pro | Val | Asp | Cys | Glu | Ile | Gln | Arg | His | |
| | | 435 | | | | | 440 | | | | | 445 | | | | |
| ctc | aaa | ccc | acg | gaa | aag | att | ttc | atg | agc | tat | gaa | gaa | atc | tgt | cct | 1811 |
| Leu | Lys | Pro | Thr | Glu | Lys | Ile | Phe | Met | Ser | Tyr | Glu | Glu | Ile | Cys | Pro | |
| | | 450 | | | | 455 | | | | | 460 | | | | | |
| caa | aga | gaa | aaa | aat | gca | acc | cag | ccc | tgc | cag | tgg | gta | tct | gca | gtc | 1859 |
| Gln | Arg | Glu | Lys | Asn | Ala | Thr | Gln | Pro | Cys | Gln | Trp | Val | Ser | Ala | Val | |
| 465 | | | | | 470 | | | | 475 | | | | | 480 | | |
| aat | gtc | cgg | aac | cgg | tac | atc | tat | gtg | gcc | cag | cca | gca | ctg | agc | aga | 1907 |
| Asn | Val | Arg | Asn | Arg | Tyr | Ile | Tyr | Val | Ala | Gln | Pro | Ala | Leu | Ser | Arg | |
| | | | 485 | | | | | 490 | | | | 495 | | | | |
| gtc | ctt | gtg | gtc | gac | atc | caa | gcc | cag | aaa | gtc | cta | cag | tcc | ata | ggg | 1955 |
| Val | Leu | Val | Val | Asp | Ile | Gln | Ala | Gln | Lys | Val | Leu | Gln | Ser | Ile | Gly | |
| | | | 500 | | | | | 505 | | | | | 510 | | | |
| gtg | gac | cct | ctg | ccg | gct | aag | ctg | tcc | tat | gac | aag | tca | cat | gac | caa | 2003 |
| Val | Asp | Pro | Leu | Pro | Ala | Lys | Leu | Ser | Tyr | Asp | Lys | Ser | His | Asp | Gln | |
| | | 515 | | | | | 520 | | | | | 525 | | | | |
| gtg | tgg | gtc | ctg | agc | tgg | ggg | gac | gtg | cac | aag | tcc | cga | cca | agt | ctc | 2051 |
| Val | Trp | Val | Leu | Ser | Trp | Gly | Asp | Val | His | Lys | Ser | Arg | Pro | Ser | Leu | |
| | 530 | | | | | 535 | | | | | 540 | | | | | |
| cag | gtg | atc | aca | gaa | gcc | agc | acc | ggc | cag | agc | cag | cac | ctc | atc | cgc | 2099 |
| Gln | Val | Ile | Thr | Glu | Ala | Ser | Thr | Gly | Gln | Ser | Gln | His | Leu | Ile | Arg | |
| 545 | | | | | 550 | | | | 555 | | | | | 560 | | |
| aca | ccc | ttt | gca | gga | gtg | gat | gat | ttc | ttc | att | ccc | cca | aca | aac | ctc | 2147 |
| Thr | Pro | Phe | Ala | Gly | Val | Asp | Asp | Phe | Phe | Ile | Pro | Pro | Thr | Asn | Leu | |
| | | | 565 | | | | | 570 | | | | | | 575 | | |
| atc | atc | aac | cac | atc | agg | ttt | ggc | ttc | atc | ttc | aac | aag | tct | gat | cct | 2195 |
| Ile | Ile | Asn | His | Ile | Arg | Phe | Gly | Phe | Ile | Phe | Asn | Lys | Ser | Asp | Pro | |
| | | | 580 | | | | 585 | | | | | 590 | | | | |
| gca | gtc | cac | aag | gtg | gac | ctg | gaa | aca | atg | atg | ccc | ctc | aag | acc | atc | 2243 |
| Ala | Val | His | Lys | Val | Asp | Leu | Glu | Thr | Met | Met | Pro | Leu | Lys | Thr | Ile | |
| | | 595 | | | | 600 | | | | | | 605 | | | | |
| ggc | ctg | cac | cac | cat | ggc | tgc | gtg | ccc | cag | gcc | atg | gca | cac | acc | cac | 2291 |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Gly | Leu | His | His | His | Gly | Cys | Val | Pro | Gln | Ala | Met | Ala | His | Thr | His | | |
| 610 | | | | | | 615 | | | | | 620 | | | | | | |
| ctg | ggc | ggc | tac | ttc | ttc | atc | cag | tgc | cga | cag | gac | agc | ccc | gcc | tct | 2339 | |
| Leu | Gly | Gly | Tyr | Phe | Phe | Ile | Gln | Cys | Arg | Gln | Asp | Ser | Pro | Ala | Ser | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | |
| gct | gcc | cga | cag | ctg | ctc | gtt | gac | agt | gtc | aca | gac | tct | gtg | ctt | ggc | 2387 | |
| Ala | Ala | Arg | Gln | Leu | Leu | Val | Asp | Ser | Val | Thr | Asp | Ser | Val | Leu | Gly | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | |
| ccc | aat | ggt | gat | gta | aca | ggc | acc | cca | cac | aca | tcc | ccc | gac | ggg | cgc | 2435 | |
| Pro | Asn | Gly | Asp | Val | Thr | Gly | Thr | Pro | His | Thr | Ser | Pro | Asp | Gly | Arg | | |
| | | | 660 | | | | | 665 | | | | | 670 | | | | |
| ttc | ata | gtc | agt | gct | gca | gct | gac | agc | ccc | tgg | ctg | cac | gtg | cag | gag | 2483 | |
| Phe | Ile | Val | Ser | Ala | Ala | Ala | Asp | Ser | Pro | Trp | Leu | His | Val | Gln | Glu | | |
| | 675 | | | | | | 680 | | | | | 685 | | | | | |
| atc | aca | gtg | cgg | ggc | gag | atc | cag | acc | ctg | tat | gac | ctg | caa | ata | aac | 2531 | |
| Ile | Thr | Val | Arg | Gly | Glu | Ile | Gln | Thr | Leu | Tyr | Asp | Leu | Gln | Ile | Asn | | |
| | 690 | | | | | 695 | | | | | 700 | | | | | | |
| tgc | ggc | atc | tca | gac | ttg | gcc | ttc | cag | cgc | tcc | ttc | act | gaa | agc | aat | 2579 | |
| Ser | Gly | Ile | Ser | Asp | Leu | Ala | Phe | Gln | Arg | Ser | Phe | Thr | Glu | Ser | Asn | | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | | |
| caa | tac | aac | atc | tac | gcg | gct | ctg | cac | acg | gag | ccg | gac | ctg | ctg | ttc | 2627 | |
| Gln | Tyr | Asn | Ile | Tyr | Ala | Ala | Leu | His | Thr | Glu | Pro | Asp | Leu | Leu | Phe | | |
| | | | | 725 | | | | | 730 | | | | | 735 | | | |
| ctg | gag | ctg | tcc | acg | ggg | aag | gtg | ggc | atg | ctg | aag | aac | tta | aag | gag | 2675 | |
| Leu | Glu | Leu | Ser | Thr | Gly | Lys | Val | Gly | Met | Leu | Lys | Asn | Leu | Lys | Glu | | |
| | | | 740 | | | | | 745 | | | | | 750 | | | | |
| cca | ccc | gca | ggg | cca | gct | cag | ccc | tgg | ggg | ggt | acc | cac | aga | atc | atg | 2723 | |
| Pro | Pro | Ala | Gly | Pro | Ala | Gln | Pro | Trp | Gly | Gly | Thr | His | Arg | Ile | Met | | |
| | | 755 | | | | | 760 | | | | | 765 | | | | | |
| agg | gac | agt | ggg | ctg | ttt | gga | cag | tac | ctc | ctc | aca | cca | gcc | cga | gag | 2771 | |
| Arg | Asp | Ser | Gly | Leu | Phe | Gly | Gln | Tyr | Leu | Leu | Thr | Pro | Ala | Arg | Glu | | |
| | 770 | | | | | 775 | | | | | 780 | | | | | | |
| tca | ctg | ttc | ctc | atc | aat | ggg | aga | caa | aac | acg | ctg | cgg | tgt | gag | gtg | 2819 | |
| Ser | Leu | Phe | Leu | Ile | Asn | Gly | Arg | Gln | Asn | Thr | Leu | Arg | Cys | Glu | Val | | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | | |
| tca | ggt | ata | aag | ggg | ggg | acc | aca | gtg | gtg | tgg | gtg | ggt | gag | gta | | 2864 | |

Ser Gly Ile Lys Gly Gly Thr Thr Val Val Trp Val Gly Glu Val
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<212> PRT

<213> Homo sapiens

<400> 18

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Glu Leu Leu Ala Ser Cys Gly Lys Lys Phe Cys Ser Arg Gly Ser Arg
 35 40 45

Cys Val Leu Ser Arg Lys Thr Gly Glu Pro Glu Cys Gln Cys Leu Glu
 50 55 60

Ala Cys Arg Pro Ser Tyr Val Pro Val Cys Gly Ser Asp Gly Arg Phe
 65 70 75 80

Tyr Glu Asn His Cys Lys Leu His Arg Ala Ala Cys Leu Leu Gly Lys
 85 90 95

Arg Ile Thr Val Ile His Ser Lys Asp Cys Phe Leu Lys Gly Asp Thr
 100 105 110

Cys Thr Met Ala Gly Tyr Ala Arg Leu Lys Asn Val Leu Leu Ala Leu
 115 120 125

Gln Thr Arg Leu Gln Pro Leu Gln Glu Gly Asp Ser Arg Gln Asp Pro
 130 135 140

Ala Ser Gln Lys Arg Leu Leu Val Glu Ser Leu Phe Arg Asp Leu Asp
 145 150 155 160

Ala Asp Gly Asn Gly His Leu Ser Ser Ser Glu Leu Ala Gln His Val
 165 170 175

Leu Lys Lys Gln Asp Leu Asp Glu Asp Leu Leu Gly Cys Ser Pro Gly
 180 185 190

Asp Leu Leu Arg Phe Asp Asp Tyr Asn Ser Asp Ser Ser Leu Thr Leu
 195 200 205

Arg Glu Phe Tyr Met Ala Phe Gln Val Val Gln Leu Ser Leu Ala Pro
 210 215 220

Glu Asp Arg Val Ser Val Thr Thr Val Thr Val Gly Leu Ser Thr Val
 225 230 235 240

Leu Thr Cys Ala Val His Gly Asp Leu Arg Pro Pro Ile Ile Trp Lys

| | | |
|---|-----|-----|
| 245 | 250 | 255 |
| Arg Asn Gly Leu Thr Leu Asn Phe Leu Asp Leu Glu Asp Ile Asn Asp | | |
| 260 | 265 | 270 |
| Phe Gly Glu Asp Asp Ser Leu Tyr Ile Thr Lys Val Thr Thr Ile His | | |
| 275 | 280 | 285 |
| Met Gly Asn Tyr Thr Cys His Ala Ser Gly His Glu Gln Leu Phe Gln | | |
| 290 | 295 | 300 |
| Thr His Val Leu Gln Val Asn Val Pro Pro Val Ile Arg Val Tyr Pro | | |
| 305 | 310 | 315 |
| Glu Ser Gln Ala Gln Glu Pro Gly Val Ala Ala Ser Leu Arg Cys His | | |
| 325 | 330 | 335 |
| Ala Glu Gly Ile Pro Met Pro Arg Ile Thr Trp Leu Lys Asn Gly Val | | |
| 340 | 345 | 350 |
| Asp Val Ser Thr Gln Met Ser Lys Gln Leu Ser Leu Leu Ala Asn Gly | | |
| 355 | 360 | 365 |
| Ser Glu Leu His Ile Ser Ser Val Arg Tyr Glu Asp Thr Gly Ala Tyr | | |
| 370 | 375 | 380 |
| Thr Cys Ile Ala Lys Asn Glu Val Gly Val Asp Glu Asp Ile Ser Ser | | |
| 385 | 390 | 395 |
| Leu Phe Ile Glu Asp Ser Ala Arg Lys Thr Leu Ala Asn Ile Leu Trp | | |
| 405 | 410 | 415 |
| Arg Glu Glu Gly Leu Ser Val Gly Asn Met Phe Tyr Val Phe Ser Asp | | |
| 420 | 425 | 430 |
| Asp Gly Ile Ile Val Ile His Pro Val Asp Cys Glu Ile Gln Arg His | | |
| 435 | 440 | 445 |
| Leu Lys Pro Thr Glu Lys Ile Phe Met Ser Tyr Glu Glu Ile Cys Pro | | |
| 450 | 455 | 460 |
| Gln Arg Glu Lys Asn Ala Thr Gln Pro Cys Gln Trp Val Ser Ala Val | | |
| 465 | 470 | 475 |
| Asn Val Arg Asn Arg Tyr Ile Tyr Val Ala Gln Pro Ala Leu Ser Arg | | |
| 485 | 490 | 495 |
| Val Leu Val Val Asp Ile Gln Ala Gln Lys Val Leu Gln Ser Ile Gly | | |

| | | |
|---|-----|-----|
| 500 | 505 | 510 |
| Val Asp Pro Leu Pro Ala Lys Leu Ser Tyr Asp Lys Ser His Asp Gln | | |
| 515 | 520 | 525 |
| Val Trp Val Leu Ser Trp Gly Asp Val His Lys Ser Arg Pro Ser Leu | | |
| 530 | 535 | 540 |
| Gln Val Ile Thr Glu Ala Ser Thr Gly Gln Ser Gln His Leu Ile Arg | | |
| 545 | 550 | 555 |
| Thr Pro Phe Ala Gly Val Asp Asp Phe Phe Ile Pro Pro Thr Asn Leu | | |
| 565 | 570 | 575 |
| Ile Ile Asn His Ile Arg Phe Gly Phe Ile Phe Asn Lys Ser Asp Pro | | |
| 580 | 585 | 590 |
| Ala Val His Lys Val Asp Leu Glu Thr Met Met Pro Leu Lys Thr Ile | | |
| 595 | 600 | 605 |
| Gly Leu His His His Gly Cys Val Pro Gln Ala Met Ala His Thr His | | |
| 610 | 615 | 620 |
| Leu Gly Gly Tyr Phe Phe Ile Gln Cys Arg Gln Asp Ser Pro Ala Ser | | |
| 625 | 630 | 635 |
| Ala Ala Arg Gln Leu Leu Val Asp Ser Val Thr Asp Ser Val Leu Gly | | |
| 645 | 650 | 655 |
| Pro Asn Gly Asp Val Thr Gly Thr Pro His Thr Ser Pro Asp Gly Arg | | |
| 660 | 665 | 670 |
| Phe Ile Val Ser Ala Ala Ala Asp Ser Pro Trp Leu His Val Gln Glu | | |
| 675 | 680 | 685 |
| Ile Thr Val Arg Gly Glu Ile Gln Thr Leu Tyr Asp Leu Gln Ile Asn | | |
| 690 | 695 | 700 |
| Ser Gly Ile Ser Asp Leu Ala Phe Gln Arg Ser Phe Thr Glu Ser Asn | | |
| 705 | 710 | 715 |
| Gln Tyr Asn Ile Tyr Ala Ala Leu His Thr Glu Pro Asp Leu Leu Phe | | |
| 725 | 730 | 735 |
| Leu Glu Leu Ser Thr Gly Lys Val Gly Met Leu Lys Asn Leu Lys Glu | | |
| 740 | 745 | 750 |
| Pro Pro Ala Gly Pro Ala Gln Pro Trp Gly Gly Thr His Arg Ile Met | | |

755

760

765

Arg Asp Ser Gly Leu Phe Gly Gln Tyr Leu Leu Thr Pro Ala Arg Glu
 770 775 780

Ser Leu Phe Leu Ile Asn Gly Arg Gln Asn Thr Leu Arg Cys Glu Val
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Ser Gly Ile Lys Gly Gly Thr Thr Val Val Trp Val Gly Glu Val
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gcc atg cca gtg acg gta acc cgc acc acc atc aca acc acc acg acg 168
 Met Pro Val Thr Val Thr Arg Thr Thr Ile Thr Thr Thr Thr Thr
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tca tct tcg ggc ctg ggg tcc ccc atg atc gtg ggg tcc cct cgg gcc 216
 Ser Ser Ser Gly Leu Gly Ser Pro Met Ile Val Gly Ser Pro Arg Ala
 20 25 30

ctg aca cag ccc ctg ggt ctc ctt cgc ctg ctg cag ctg gtg tct acc 264
 Leu Thr Gln Pro Leu Gly Leu Leu Arg Leu Leu Gln Leu Val Ser Thr
 35 40 45

tgc gtg gcc ttc tcg ctg gtg gct agc gtg ggc gcc tgg acg ggg tcc 312
 Cys Val Ala Phe Ser Leu Val Ala Ser Val Gly Ala Trp Thr Gly Ser
 50 55 60

atg ggc aac tgg tcc atg ttc acc tgg tgc ttc tgc ttc tcc gtg acc 360
 Met Gly Asn Trp Ser Met Phe Thr Trp Cys Phe Cys Phe Ser Val Thr
 65 70 75

ctg atc atc ctc atc gtg gag ctg tgc ggg ctc cag gcc cgc ttc ccc 408
 Leu Ile Ile Leu Ile Val Glu Leu Cys Gly Leu Gln Ala Arg Phe Pro

| 80 | 85 | 90 | 95 | |
|---|-----|-----|-----|-----|
| ctg tct tgg cgc aac ttc ccc atc acc ttc gcc tgc tat gcg gcc ctc | | | | 456 |
| Leu Ser Trp Arg Asn Phe Pro Ile Thr Phe Ala Cys Tyr Ala Ala Leu | | | | |
| | 100 | 105 | 110 | |
| ttc tgc ctc tcg gcc tcc atc atc tac ccc acc acc tat gtc cag ttc | | | | 504 |
| Phe Cys Leu Ser Ala Ser Ile Ile Tyr Pro Thr Thr Tyr Val Gln Phe | | | | |
| | 115 | 120 | 125 | |
| ctg tcc cac gcc cgt tcg cgg gac cac gcc atc gcc gcc acc ttc ttc | | | | 552 |
| Leu Ser His Gly Arg Ser Arg Asp His Ala Ile Ala Ala Thr Phe Phe | | | | |
| | 130 | 135 | 140 | |
| tcc tgc atc gcg tgt gtg gct tac gcc acc gaa gtg gcc tgg acc cgg | | | | 600 |
| Ser Cys Ile Ala Cys Val Ala Tyr Ala Thr Glu Val Ala Trp Thr Arg | | | | |
| | 145 | 150 | 155 | |
| gcc cgg ccc gcc gag atc act gcc tat atg gcc acc gta ccc ggg ctg | | | | 648 |
| Ala Arg Pro Gly Glu Ile Thr Gly Tyr Met Ala Thr Val Pro Gly Leu | | | | |
| | 160 | 165 | 170 | 175 |
| ctg aag gtg ctg gag acc ttc gtt gcc tgc atc atc ttc gcg ttc atc | | | | 696 |
| Leu Lys Val Leu Glu Thr Phe Val Ala Cys Ile Ile Phe Ala Phe Ile | | | | |
| | 180 | 185 | 190 | |
| agc gac ccc aac ctg tac cag cac cag ccg gcc ctg gag tgg tgc gtg | | | | 744 |
| Ser Asp Pro Asn Leu Tyr Gln His Gln Pro Ala Leu Glu Trp Cys Val | | | | |
| | 195 | 200 | 205 | |
| gcg gtg tac gcc atc tgc ttc atc cta gcg gcc atc gcc atc ctg ctg | | | | 792 |
| Ala Val Tyr Ala Ile Cys Phe Ile Leu Ala Ala Ile Ala Ile Leu Leu | | | | |
| | 210 | 215 | 220 | |
| aac ctg ggg gag tgc acc aac gtg cta ccc atc ccc ttc ccc agc ttc | | | | 840 |
| Asn Leu Gly Glu Cys Thr Asn Val Leu Pro Ile Pro Phe Pro Ser Phe | | | | |
| | 225 | 230 | 235 | |
| ctg tcg ggg ctg gcc ttg ctg tct gtc ctc ctc tat gcc acc gcc ctt | | | | 888 |
| Leu Ser Gly Leu Ala Leu Leu Ser Val Leu Leu Tyr Ala Thr Ala Leu | | | | |
| | 240 | 245 | 250 | 255 |
| gtt ctc tgg ccc ctc tac cag ttc gat gag aag tat gcc gcc cag cct | | | | 936 |
| Val Leu Trp Pro Leu Tyr Gln Phe Asp Glu Lys Tyr Gly Gly Gln Pro | | | | |
| | 260 | 265 | 270 | |
| cgg cgc tcg aga gat gta agc tgc agc cgc agc cat gcc tac tac gtg | | | | 984 |
| Arg Arg Ser Arg Asp Val Ser Cys Ser Arg Ser His Ala Tyr Tyr Val | | | | |

275

280

285

tgt gcc tgg gac cgc cga ctg gct gtg gcc atc ctg acg gcc atc aac 1032
 Cys Ala Trp Asp Arg Arg Leu Ala Val Ala Ile Leu Thr Ala Ile Asn
 290 295 300

cta ctg gcg tat gtg gct gac ctg gtg cac tct gcc cac ctg gtt ttt 1080
 Leu Leu Ala Tyr Val Ala Asp Leu Val His Ser Ala His Leu Val Phe
 305 310 315

gtc aag gtc taagactctc ccaagaggct cccgttcct ctccaacctc 1129
 Val Lys Val
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<211> 322

<212> PRT

<213> Homo sapiens

<400> 20

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Ser Ser Gly Leu Gly Ser Pro Met Ile Val Gly Ser Pro Arg Ala Leu
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Thr Gln Pro Leu Gly Leu Leu Arg Leu Leu Gln Leu Val Ser Thr Cys
 35 40 45

Val Ala Phe Ser Leu Val Ala Ser Val Gly Ala Trp Thr Gly Ser Met
 50 55 60

Gly Asn Trp Ser Met Phe Thr Trp Cys Phe Cys Phe Ser Val Thr Leu
 65 70 75 80

Ile Ile Leu Ile Val Glu Leu Cys Gly Leu Gln Ala Arg Phe Pro Leu
 85 90 95

Ser Trp Arg Asn Phe Pro Ile Thr Phe Ala Cys Tyr Ala Ala Leu Phe
 100 105 110

Cys Leu Ser Ala Ser Ile Ile Tyr Pro Thr Thr Tyr Val Gln Phe Leu
 115 120 125

Ser His Gly Arg Ser Arg Asp His Ala Ile Ala Ala Thr Phe Phe Ser
 130 135 140

Cys Ile Ala Cys Val Ala Tyr Ala Thr Glu Val Ala Trp Thr Arg Ala
 145 150 155 160

Arg Pro Gly Glu Ile Thr Gly Tyr Met Ala Thr Val Pro Gly Leu Leu
 165 170 175

Lys Val Leu Glu Thr Phe Val Ala Cys Ile Ile Phe Ala Phe Ile Ser
 180 185 190

Asp Pro Asn Leu Tyr Gln His Gln Pro Ala Leu Glu Trp Cys Val Ala
 195 200 205

Val Tyr Ala Ile Cys Phe Ile Leu Ala Ala Ile Ala Ile Leu Leu Asn
 210 215 220

Leu Gly Glu Cys Thr Asn Val Leu Pro Ile Pro Phe Pro Ser Phe Leu
 225 230 235 240

Ser Gly Leu Ala Leu Leu Ser Val Leu Leu Tyr Ala Thr Ala Leu Val
 245 250 255

Leu Trp Pro Leu Tyr Gln Phe Asp Glu Lys Tyr Gly Gly Gln Pro Arg
 260 265 270

Arg Ser Arg Asp Val Ser Cys Ser Arg Ser His Ala Tyr Tyr Val Cys
 275 280 285

Ala Trp Asp Arg Arg Leu Ala Val Ala Ile Leu Thr Ala Ile Asn Leu
 290 295 300

Leu Ala Tyr Val Ala Asp Leu Val His Ser Ala His Leu Val Phe Val
 305 310 315 320

Lys Val

<210> 21

<211> 1203

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (587) .. (1012)

<400> 21

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caaccagaca attgtgatga aatgtgaagc acaaggcacc agctgtgacg tgtttttgcc 180
aagaagtcaa accacgttcc aactaaacct ctagagcaaa ctttcatttt cagcaaattc 240
gaagaaaaga ggaataatgt aaatgacccc acagggaac agacaaaccc tgaatgtgga 300
gcatttcaca ggacaaaacc tggacagaca tcggaacact tacaggatgt gtgtagtgtg 360
gcatgacaga gaactttggt ttcctttaat gtgactgtag acctggcagt gttactataa 420
gaatcactgg caatcagaca cccgggtgtg ctgagctggc actcagtggg ggcggctact 480
gctcatgtga ttgtggagta gacagttgga agaagtaccc agtccatttg gagagttaaa 540
actgtgccta acagaggtgt cctctgactt ttcttctgca agctcc atg ttt tca      595
                                   Met Phe Ser
                                   1

cat ctt ccc ttt gac tgt gtc ctg ctg ctg ctg ctg cta cta ctt aca      643
His Leu Pro Phe Asp Cys Val Leu Leu Leu Leu Leu Leu Leu Leu Thr
      5              10              15

agg tcc tca gaa gtg gaa tac aga gcg gag gtc ggt cag aat gcc tat      691
Arg Ser Ser Glu Val Glu Tyr Arg Ala Glu Val Gly Gln Asn Ala Tyr
      20              25              30              35

ctg ccc tgc ttc tac acc cca gcc gcc cca ggg aac ctc gtg ccc gtc      739
Leu Pro Cys Phe Tyr Thr Pro Ala Ala Pro Gly Asn Leu Val Pro Val
              40              45              50

tgc tgg ggc aaa gga gcc tgt cct gtg ttt gaa tgt ggc aac gtg gtg      787
Cys Trp Gly Lys Gly Ala Cys Pro Val Phe Glu Cys Gly Asn Val Val
              55              60              65

ctc agg act gat gaa agg gat gtg aat tat tgg aca tcc aga tac tgg      835
Leu Arg Thr Asp Glu Arg Asp Val Asn Tyr Trp Thr Ser Arg Tyr Trp
              70              75              80

cta aat ggg gat ttc cgc aaa gga gat gtg tcc ctg acc ata gag aat      883
Leu Asn Gly Asp Phe Arg Lys Gly Asp Val Ser Leu Thr Ile Glu Asn
      85              90              95

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gtg act cta gca gac agt ggg atc tac tgc tgc cgg atc caa atc cca 931
 Val Thr Leu Ala Asp Ser Gly Ile Tyr Cys Cys Arg Ile Gln Ile Pro
 100 105 110 115

ggc ata atg aat gat gaa aaa ttt aac ctg aag ttg gtc atc aaa cca 979
 Gly Ile Met Asn Asp Glu Lys Phe Asn Leu Lys Leu Val Ile Lys Pro
 120 125 130

ggt gag tgg aca ttt gca tgc cat ctt tat gaa taagatttat ctgtggatca 1032
 Gly Glu Trp Thr Phe Ala Cys His Leu Tyr Glu
 135 140

tattaaaggt actgattggt ctcatctctg acttccctaa ttatagccct ggaggagggc 1092

cactaagacc taaagtttaa caggcccat tggatgatgct cagtgatatt taacaccttc 1152

tctctgtttt aaaactcatg ggtgtgcctg ggcgtggtgg ctcacacctc t 1203

<210> 22
 <211> 142
 <212> PRT
 <213> Homo sapiens

<400> 22
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Leu Leu Thr Arg Ser Ser Glu Val Glu Tyr Arg Ala Glu Val Gly Gln
 20 25 30

Asn Ala Tyr Leu Pro Cys Phe Tyr Thr Pro Ala Ala Pro Gly Asn Leu
 35 40 45

Val Pro Val Cys Trp Gly Lys Gly Ala Cys Pro Val Phe Glu Cys Gly
 50 55 60

Asn Val Val Leu Arg Thr Asp Glu Arg Asp Val Asn Tyr Trp Thr Ser
 65 70 75 80

Arg Tyr Trp Leu Asn Gly Asp Phe Arg Lys Gly Asp Val Ser Leu Thr
 85 90 95

Ile Glu Asn Val Thr Leu Ala Asp Ser Gly Ile Tyr Cys Cys Arg Ile
 100 105 110

Gln Ile Pro Gly Ile Met Asn Asp Glu Lys Phe Asn Leu Lys Leu Val

115

120

125

Ile Lys Pro Gly Glu Trp Thr Phe Ala Cys His Leu Tyr Glu
 130 135 140

<210> 23

<211> 825

<212> DNA

<213> Homo sapiens

<220>

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<222> (494)..(769)

<400> 23

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gctctggcag gaacgcccc ccgggcaatg cagagtcctc ctccaggagg cacttagtgt 180

ccatgcgtca ccttgctggg gatgcttcac tggatcactt ggttccgggg ttgtccgcac 240

gtctccctgt agtgcagggtg ctcttctc tttccaatta gctgtggga tgggacttgg 300

aagctgtgtc tgttctgctc cactggcaac cttttcttca atgacttaag ctgggtgttt 360

gccattttcc atactctatc atggggagtg ttcagtatcg gcacttagag atctcccctg 420

gccccatcac agctagagct atgctgtccc ctttcaggga catcttgtaa tttatccacc 480

cagcccccaa ctg atg gac ata aag gct gtc tcc cca tca tct cct gct 529

Met Asp Ile Lys Ala Val Ser Pro Ser Ser Pro Ala

1

5

10

act aca gac agc act gca ggg act gtc ctg ctg tgt ttt ttt aag gca 577

Thr Thr Asp Ser Thr Ala Gly Thr Val Leu Leu Cys Phe Phe Lys Ala

15

20

25

tgg gta ctc cag aag cag ttg ctc agc tgc acc ccc aag gtt gag tgg 625

Trp Val Leu Gln Lys Gln Leu Leu Ser Cys Thr Pro Lys Val Glu Trp

30

35

40

aag tcc ctc ggt aaa gga gga gga gag agt gtg aag gga atg gca agg 673

Lys Ser Leu Gly Lys Gly Gly Gly Glu Ser Val Lys Gly Met Ala Arg

45

50

55

60

cgg gga ggg aga cag ggc aca ggt gtc ctg gca aca gca gat ggg aaa 721
 Arg Gly Gly Arg Gln Gly Thr Gly Val Leu Ala Thr Ala Asp Gly Lys
 65 70 75

cag gtc tgg cta agg tac cag aag cca aca agt ccc aga aag gtc aag 769
 Gln Val Trp Leu Arg Tyr Gln Lys Pro Thr Ser Pro Arg Lys Val Lys
 80 85 90

tgactttccc aaggtcacac agcaagttga tggcagagct gggtacagga ctcaga 825

<210> 24
 <211> 92
 <212> PRT
 <213> Homo sapiens

<400> 24
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 1 5 10 15

Thr Ala Gly Thr Val Leu Leu Cys Phe Phe Lys Ala Trp Val Leu Gln
 20 25 30

Lys Gln Leu Leu Ser Cys Thr Pro Lys Val Glu Trp Lys Ser Leu Gly
 35 40 45

Lys Gly Gly Gly Glu Ser Val Lys Gly Met Ala Arg Arg Gly Gly Arg
 50 55 60

Gln Gly Thr Gly Val Leu Ala Thr Ala Asp Gly Lys Gln Val Trp Leu
 65 70 75 80

Arg Tyr Gln Lys Pro Thr Ser Pro Arg Lys Val Lys
 85 90

<210> 25
 <211> 1099
 <212> DNA
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<220>
 <221> CDS
 <222> (83) .. (889)

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52

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 Leu Leu Lys His Ser Gly Met Arg Phe Thr Thr Lys Asp Arg Asp Ser
 190 195 200

gac cat tca gag aac aac tgt gcc gcc ttc tac cgc ggt gcc tgg tgg 736
 Asp His Ser Glu Asn Asn Cys Ala Ala Phe Tyr Arg Gly Ala Trp Trp
 205 210 215

tac cgc aac tgc cac acg tcc aac ctc aat ggg cag tac ctg cgc ggt 784
 Tyr Arg Asn Cys His Thr Ser Asn Leu Asn Gly Gln Tyr Leu Arg Gly
 220 225 230

gcg cac gcc tcc tat gcc gac ggc gtg gag tgg tcc tcc tgg acc ggc 832
 Ala His Ala Ser Tyr Ala Asp Gly Val Glu Trp Ser Ser Trp Thr Gly
 235 240 245 250

tgg cag tac tca ctc aag ttc tct gag atg aag atc cgg ccg gtc cgg 880
 Trp Gln Tyr Ser Leu Lys Phe Ser Glu Met Lys Ile Arg Pro Val Arg
 255 260 265

gag gac cgc tagaccggtg caccttgtcc ttggccctgc tggtcctgt 929
 Glu Asp Arg

cgccccatcc ccgacccac ctcactcttt cgtgaatggt ctccaccac ctgtgcctgg 989

cggacccact ctccagtagg gaggggcccgg gccatccctg acacgaagct ccctgggccc 1049

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<210> 26

<211> 269

<212> PRT

<213> Homo sapiens

<400> 26

Met Ala His Leu Val Asn Ser Val Ser Asp Ile Leu Asp Ala Leu Gln
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Arg Asp Arg Gly Leu Gly Arg Pro Arg Asn Lys Ala Asp Leu Gln Arg
 20 25 30

Ala Pro Ala Arg Gly Thr Arg Pro Arg Gly Cys Ala Thr Gly Ser Arg
 35 40 45

Pro Arg Asp Cys Leu Asp Val Leu Leu Ser Gly Gln Gln Asp Asp Gly
 50 55 60

Val Tyr Ser Val Phe Pro Thr His Tyr Pro Ala Gly Phe Gln Val Tyr
65 70 75 80

Cys Asp Met Arg Thr Asp Gly Gly Gly Trp Thr Val Phe Gln Arg Arg
85 90 95

Glu Asp Gly Ser Val Asn Phe Phe Arg Gly Trp Asp Ala Tyr Arg Asp
100 105 110

Gly Phe Gly Arg Leu Thr Gly Glu His Trp Leu Gly Leu Lys Arg Ile
115 120 125

His Ala Leu Thr Thr Gln Ala Ala Tyr Glu Leu His Val Asp Leu Glu
130 135 140

Asp Phe Glu Asn Gly Thr Ala Tyr Ala Arg Tyr Gly Ser Phe Gly Val
145 150 155 160

Gly Leu Phe Ser Val Asp Pro Glu Glu Asp Gly Tyr Pro Leu Thr Val
165 170 175

Ala Asp Tyr Ser Gly Thr Ala Gly Asp Ser Leu Leu Lys His Ser Gly
180 185 190

Met Arg Phe Thr Thr Lys Asp Arg Asp Ser Asp His Ser Glu Asn Asn
195 200 205

Cys Ala Ala Phe Tyr Arg Gly Ala Trp Trp Tyr Arg Asn Cys His Thr
210 215 220

Ser Asn Leu Asn Gly Gln Tyr Leu Arg Gly Ala His Ala Ser Tyr Ala
225 230 235 240

Asp Gly Val Glu Trp Ser Ser Trp Thr Gly Trp Gln Tyr Ser Leu Lys
245 250 255

Phe Ser Glu Met Lys Ile Arg Pro Val Arg Glu Asp Arg
260 265

<210> 27

<211> 1054

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (38) .. (844)

<400> 27

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Met Ala His Leu Val Asn

1

5

tcc gtc agc gac atc ctg gat gcc ctg cag agg gac cgg ggg ctg ggc 103
Ser Val Ser Asp Ile Leu Asp Ala Leu Gln Arg Asp Arg Gly Leu Gly
10 15 20

cgg ccc cgc aac aag gcc gac ctt cag aga gcg cct gcc cgg gga acc 151
Arg Pro Arg Asn Lys Ala Asp Leu Gln Arg Ala Pro Ala Arg Gly Thr
25 30 35

cgg ccc cgg ggc tgt gcc act ggc tcc cgg ccc cga gac tgt ctg gac 199
Arg Pro Arg Gly Cys Ala Thr Gly Ser Arg Pro Arg Asp Cys Leu Asp
40 45 50

gtc ctc cta agc gga cag cag gac gat ggc gtc tac tct gtc ttt ccc 247
Val Leu Leu Ser Gly Gln Gln Asp Asp Gly Val Tyr Ser Val Phe Pro
55 60 65 70

acc cac tac ccg gcc ggc ttc cag gtg tac tgt gac atg cgc acg gac 295
Thr His Tyr Pro Ala Gly Phe Gln Val Tyr Cys Asp Met Arg Thr Asp
75 80 85

ggc ggc ggc tgg acg gtg ttt cag cgc cgg gag gac ggc tcc gtg aac 343
Gly Gly Gly Trp Thr Val Phe Gln Arg Arg Glu Asp Gly Ser Val Asn
90 95 100

ttc ttc cgg ggc tgg gat gcg tac cga gac ggc ttt ggc agg ctc acc 391
Phe Phe Arg Gly Trp Asp Ala Tyr Arg Asp Gly Phe Gly Arg Leu Thr
105 110 115

ggg gag cac tgg cta ggg ctc aag agg atc cac gcc ctg acc aca cag 439
Gly Glu His Trp Leu Gly Leu Lys Arg Ile His Ala Leu Thr Thr Gln
120 125 130

gct gcc tac gag ctg cac gtg gac ctg gag gac ttt gag aat ggc acg 487
Ala Ala Tyr Glu Leu His Val Asp Leu Glu Asp Phe Glu Asn Gly Thr
135 140 145 150

gcc tat gcc cgc tac ggg agc ttc ggc gtg ggc ttg ttc gcc gtg gac 535
Ala Tyr Ala Arg Tyr Gly Ser Phe Gly Val Gly Leu Phe Ala Val Asp
155 160 165

cct gag gaa gac ggg cac ccg ctc acc gtg gct gac tat tcc ggc act 583
Pro Glu Glu Asp Gly His Pro Leu Thr Val Ala Asp Tyr Ser Gly Thr

170 175 180
 gca ggc gac tcc ctc ctg aag cac agc ggc atg agg ttc acc acc aag 631
 Ala Gly Asp Ser Leu Leu Lys His Ser Gly Met Arg Phe Thr Thr Lys
 185 190 195
 gac cgt gac agc gac cat tca gag aac aac tgt gcc gcc ttc tac cgc 679
 Asp Arg Asp Ser Asp His Ser Glu Asn Asn Cys Ala Ala Phe Tyr Arg
 200 205 210
 ggt gcc tgg tgg tac cgc aac tgc cac acg tcc aac ctc aat ggg cag 727
 Gly Ala Trp Trp Tyr Arg Asn Cys His Thr Ser Asn Leu Asn Gly Gln
 215 220 225 230
 tac ctg cgc ggt gcg cac gcc tcc tat gcc gac ggc gtg gag tgg tcc 775
 Tyr Leu Arg Gly Ala His Ala Ser Tyr Ala Asp Gly Val Glu Trp Ser
 235 240 245
 tcc tgg acc ggc tgg cag tac tca ctc aag ttc tct gag atg aag atc 823
 Ser Trp Thr Gly Trp Gln Tyr Ser Leu Lys Phe Ser Glu Met Lys Ile
 250 255 260
 cgg ccg gtc cgg gag gac cgc tagaccggtg caccttgctc ttggccctgc 874
 Arg Pro Val Arg Glu Asp Arg
 265
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 ctgtgcctgg cggacccact ctccagtagg gaggggcccgg gccatccctg acacgaagct 994
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<210> 28

<211> 269

<212> PRT

<213> Homo sapiens

<400> 28

Met Ala His Leu Val Asn Ser Val Ser Asp Ile Leu Asp Ala Leu Gln
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Arg Asp Arg Gly Leu Gly Arg Pro Arg Asn Lys Ala Asp Leu Gln Arg
 20 25 30

Ala Pro Ala Arg Gly Thr Arg Pro Arg Gly Cys Ala Thr Gly Ser Arg
 35 40 45

Pro Arg Asp Cys Leu Asp Val Leu Leu Ser Gly Gln Gln Asp Asp Gly
 50 55 60

Val Tyr Ser Val Phe Pro Thr His Tyr Pro Ala Gly Phe Gln Val Tyr
 65 70 75 80

Cys Asp Met Arg Thr Asp Gly Gly Gly Trp Thr Val Phe Gln Arg Arg
 85 90 95

Glu Asp Gly Ser Val Asn Phe Phe Arg Gly Trp Asp Ala Tyr Arg Asp
 100 105 110

Gly Phe Gly Arg Leu Thr Gly Glu His Trp Leu Gly Leu Lys Arg Ile
 115 120 125

His Ala Leu Thr Thr Gln Ala Ala Tyr Glu Leu His Val Asp Leu Glu
 130 135 140

Asp Phe Glu Asn Gly Thr Ala Tyr Ala Arg Tyr Gly Ser Phe Gly Val
 145 150 155 160

Gly Leu Phe Ala Val Asp Pro Glu Glu Asp Gly His Pro Leu Thr Val
 165 170 175

Ala Asp Tyr Ser Gly Thr Ala Gly Asp Ser Leu Leu Lys His Ser Gly
 180 185 190

Met Arg Phe Thr Thr Lys Asp Arg Asp Ser Asp His Ser Glu Asn Asn
 195 200 205

Cys Ala Ala Phe Tyr Arg Gly Ala Trp Trp Tyr Arg Asn Cys His Thr
 210 215 220

Ser Asn Leu Asn Gly Gln Tyr Leu Arg Gly Ala His Ala Ser Tyr Ala
 225 230 235 240

Asp Gly Val Glu Trp Ser Ser Trp Thr Gly Trp Gln Tyr Ser Leu Lys
 245 250 255

Phe Ser Glu Met Lys Ile Arg Pro Val Arg Glu Asp Arg
 260 265

<210> 29

<211> 498

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(498)

<400> 29

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| Met Asn Phe Leu Lys Leu Ile Ala Val Phe Ile Val Phe Ser His Ala | |
| 1 5 10 15 | |
| tcg gaa tca cct cag gac tcc act ccc aat caa tta tat atc tgg ggg | 96 |
| Ser Glu Ser Pro Gln Asp Ser Thr Pro Asn Gln Leu Tyr Ile Trp Gly | |
| 20 25 30 | |
| agg acc aag gcg ttg gta ttt ttc aga agc tcc act ggt gat tct gac | 144 |
| Arg Thr Lys Ala Leu Val Phe Phe Arg Ser Ser Thr Gly Asp Ser Asp | |
| 35 40 45 | |
| agc aca gct agg att aag aaa ctg atc aat ggg aac agc atg cct gtt | 192 |
| Ser Thr Ala Arg Ile Lys Lys Leu Ile Asn Gly Asn Ser Met Pro Val | |
| 50 55 60 | |
| gca gag gag ctt ccc tgg gaa atg tca cac aca gaa cat caa tct tcc | 240 |
| Ala Glu Glu Leu Pro Trp Glu Met Ser His Thr Glu His Gln Ser Ser | |
| 65 70 75 80 | |
| ttc ccc act cct gag atc cct cat tct ttg gca cca gga aca gtt gca | 288 |
| Phe Pro Thr Pro Glu Ile Pro His Ser Leu Ala Pro Gly Thr Val Ala | |
| 85 90 95 | |
| att agt aaa ccc tgg ttc cct gct gtc tca caa atc gca aga gtc caa | 336 |
| Ile Ser Lys Pro Trp Phe Pro Ala Val Ser Gln Ile Ala Arg Val Gln | |
| 100 105 110 | |
| cgt gtg gat ata aac ttt tgt tca tgg gag gat ctt tct ccc agt gga | 384 |
| Arg Val Asp Ile Asn Phe Cys Ser Trp Glu Asp Leu Ser Pro Ser Gly | |
| 115 120 125 | |
| aaa gca act ggg aaa agc agg aca cac tgc aca gtg act gca gtt tca | 432 |
| Lys Ala Thr Gly Lys Ser Arg Thr His Cys Thr Val Thr Ala Val Ser | |
| 130 135 140 | |
| tcc aat gcc acc acc cat gca ggc ata aat aat gaa cat gga tgg ggg | 480 |
| Ser Asn Ala Thr Thr His Ala Gly Ile Asn Asn Glu His Gly Trp Gly | |
| 145 150 155 160 | |
| agt ctg gag ctg ctg aat | 498 |
| Ser Leu Glu Leu Leu Asn | |
| 165 | |

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<400> 30
Met Asn Phe Leu Lys Leu Ile Ala Val Phe Ile Val Phe Ser His Ala
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Ser Glu Ser Pro Gln Asp Ser Thr Pro Asn Gln Leu Tyr Ile Trp Gly
      20             25             30

Arg Thr Lys Ala Leu Val Phe Phe Arg Ser Ser Thr Gly Asp Ser Asp
      35             40             45

Ser Thr Ala Arg Ile Lys Lys Leu Ile Asn Gly Asn Ser Met Pro Val
  50             55             60

Ala Glu Glu Leu Pro Trp Glu Met Ser His Thr Glu His Gln Ser Ser
  65             70             75             80

Phe Pro Thr Pro Glu Ile Pro His Ser Leu Ala Pro Gly Thr Val Ala
      85             90             95

Ile Ser Lys Pro Trp Phe Pro Ala Val Ser Gln Ile Ala Arg Val Gln
      100            105            110

Arg Val Asp Ile Asn Phe Cys Ser Trp Glu Asp Leu Ser Pro Ser Gly
      115            120            125

Lys Ala Thr Gly Lys Ser Arg Thr His Cys Thr Val Thr Ala Val Ser
      130            135            140

Ser Asn Ala Thr Thr His Ala Gly Ile Asn Asn Glu His Gly Trp Gly
  145            150            155            160

Ser Leu Glu Leu Leu Asn
      165

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<400> 31

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 gggtagccgc tcaccgtggc tgactattcc ggcactgcag gcgactccct cctgaagcac 480
 agcggcatga gggtcaccac caaggaccgt gacagcgacc attcagagaa caactgtgcc 540
 gccttctacc gcggtgcctg gtggtaccgc aactgccaca cgtccaacct caatgggcag 600
 tacctgcgcg gtgcgcacgc ctctatgcc gacggcgtgg agtggctctc ctggaccggc 660
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<210> 32

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Oligo Primer

<400> 32

ctcgtcctcg agggtaagcc tatccctaac 30

<210> 33

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Oligo Primer

<400> 33

ctcgtcgggc cctgatcag cgggtttaa c 31

<210> 34

<211> 40

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Oligo Primer

<400> 34

ctcgtcagat ctcgcagcgg agatgccacc ttccccaag

40

<210> 35

<211> 40

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Oligo Primer

<400> 35

ctcgtcctcg agcctcctcg acgtgccgtt gtcacctcg

40

<210> 36

<211> 43

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Oligo Primer

<400> 36

ggatccacca tgaattttct gaaattaatt gctgtgttta tag

43

<210> 37

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Oligo Primer

<400> 37

ctcgagattc agcagctcca gactcccca tccatg

36

<210> 38
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligo Primer

<400> 38
agatctcaga gagcgctgc ccggggaacc 30

<210> 39
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligo Primer

<400> 39
ctcgaggcgg tcctcccgga ccggccggat c 31

<210> 40
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligo Primer

<400> 40
gaggacggct ccgtgaac 18

<210> 41
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligo Primer

<400> 41
gttcacggag ccgtcttc 18

<210> 42
<211> 19
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Oligo Primer

<400> 42
cagcggcatg aggttcacc

19

<210> 43
<211> 19
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Oligo Primer

<400> 43
ggtgaacctc atgccgctg

19

<210> 44
<211> 14
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Oligo Primer

<400> 44
catggtcagc ctac

14

<210> 45
<211> 14
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Oligo Primer

<400> 45
tcgagtaggc tgac

14

<210> 46
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligo Primer

<400> 46
tccctgggaa atgtcacaca 20

<210> 47
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligo Primer

<400> 47
ttcctgggtgc caaagaatga g 21

<210> 48
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligo Primer

<400> 48
agaacatcaa tcttccttcc ccactcctga g 31

<210> 49
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
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<220>
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